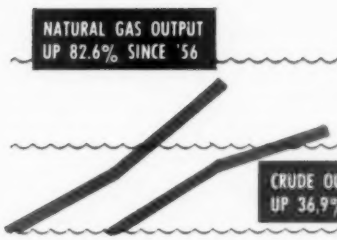
FEB. 20 1959

PETROLEUM WEEK

A McGRAW-HILL PUBLICATION



Offshore emphasis is on gas as activity quickens 54

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Price 50 Cents

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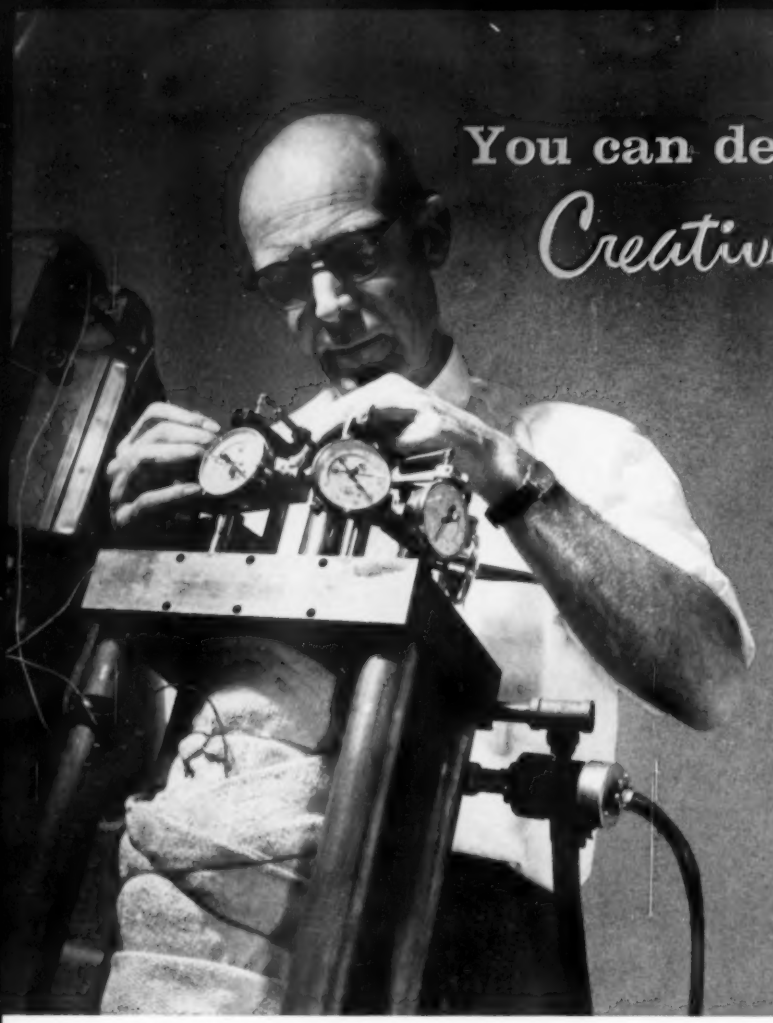

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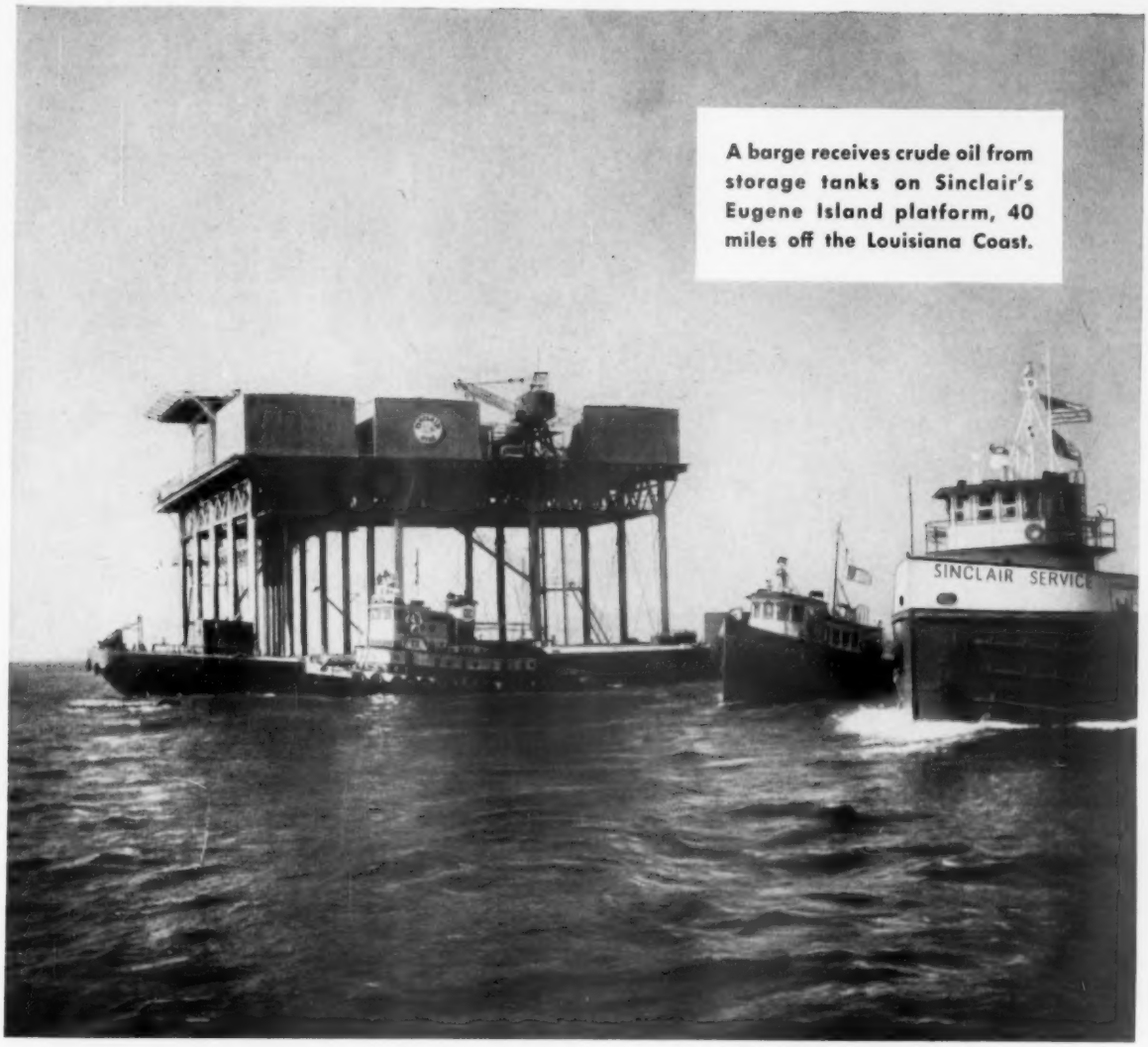

A barge receives crude oil from storage tanks on Sinclair's Eugene Island platform, 40 miles off the Louisiana Coast.

The Case of the Disappearing Derricks

Out in the Gulf of Mexico, some oil drilling derricks have disappeared. Offshore platforms look strangely bare. What's going on? Is the search for oil stopping in this promising area? Hardly. Actually, disappearing derricks mean that some of the promise is being realized; *oil has begun flowing to market.*

When the derrick comes down on a Sinclair Oil & Gas Company platform, it marks the transition from oil exploration to oil production. On three platforms which Sinclair operates for itself and three other companies, there now are a total of 10 oil wells in production and 4 gas wells shut in.

In relation to Sinclair's total crude oil output, *which reached a record high in 1958,* present production from 10 offshore wells is the proverbial drop in a bucket. But the start of production on this new oil frontier indicates that offshore oil will one day contribute importantly to the company's raw material supply and is another step forward in Sinclair's production expansion program.

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A Great Name in Oil

SINCLAIR OIL CORPORATION • 600 FIFTH AVENUE • NEW YORK 20, N. Y.

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Stronger, Cheaper than tack-welding

THREDLOK 801 is a new compound that seals and locks casing joints tightly and permanently. It offers an easy, economical alternative to welding for bonding the bottom two or three joints in a casing string to prevent casing breakout during rotary drilling.

Extensive use in the field has proved that THREDLOK provides stronger joints than tack-welding. It eliminates the possibility of damage to high-strength casing that may result from welding alloy pipe. And where welding the first two or three joints in a casing string costs approximately $50 to $75, THREDLOK gets the job done for about $6.00.

THREDLOK 801 is available in pound cans, @ $3.00 per lb., at Humble wholesale plants throughout Texas and New Mexico. THREDLOK is also available through many oil field supply stores. Call the one nearest you, or phone or write:

Humble Oil & Refining Company
Consumer Sales, P. O. Box 2180
Houston 1, Texas

How to use

- Remove couplings, carefully clean and dry both male and female threads.
- Mix contents of THREDLOK can, pour converter into can and stir thoroughly.
- Apply THREDLOK to male and female threads with paddle or putty knife, making sure the threads are completely covered.
- Make the joint up immediately. It can then be run into the hole without delay.

HUMBLE

PETROLEUM WEEK

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INSIDE Slant

EDUCATION NEEDED

The petroleum industry still needs to do a lot of educational work, even within its own ranks, on percentage depletion.

No matter how much is written and how many speeches are made on the subject, there still continues to be almost complete lack of understanding of depletion by some.

If there is any doubt in your minds, just read the following, from a prominent business newspaper:

"The Internal Revenue Service figures on depletion claimed by oil and gas companies with net income during 1956-1957 break down this way:

"Producers of crude petroleum and natural gas, $352-million; manufacturers of petroleum and coal products, $1,369-million, almost all of which goes to oil refiners."

Depletion, as every oil man knows, cannot possibly "go to oil refiners." It applies against individual producing properties, and is designed to give credit for a depleting asset.

Refineries and other constructed facilities are only permitted to charge off depreciation, the same as in any other business.

Depletion applies to individual producers and integrated companies alike.

LeRoy Menzing
EDITOR

MUD CONTROL MEANS MONEY

Oil well drilling mud must be properly controlled for protection and profit. That's why these three pieces of Cameron equipment have proven so popular in successful drilling operations all over the world.

"FLEX-SEAL" MUD LINE VALVES have been a standard of the drilling industry for twenty years. Their rugged dependability, low maintenance, and economical repair have placed them on almost every drilling rig.

"SHEAR-RELIEF" VALVES shear a common nail (U. S. Standard) to relieve destructive pressure overloads. Slush pumps, manifolds, and other expensive components are instantly protected by these unusual safety valves when desired pressures are exceeded.

CAMERON PRESSURE GAUGES have met wide acceptance for mud line service because their self-contained dampening mechanisms require no adjustment for changes in pressure range.

All three of these products were designed to work together and to do a better job of controlling vital but hazardous mud under high pulsating pressure. When you drill for oil or gas, COUNT ON CAMERON mud line products for protection and profits.

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DEPT/Opinions

Views That Make News . . .

"The impact of declining crude prices has been offset at present by corresponding increases in refinery margins. But over the long run, crude prices must rise to cover increasing costs of finding and producing oil."

—L. F. McCollum
President
Continental Oil Co.

"Investigations indicate that offshore drilling costs are improving, and that the net cost of developing reserves will be reasonable and entirely in line with investments."

—Ira H. Cram
Senior vice-president
Continental Oil Co.

"This past November and December saw the first real feeling of optimism for the independent [producer] in our area in several years.

"This optimism was brought about primarily by the predictions of a healthy rise in domestic consumption and by the hope of an immediate and effective imports program.

"That feeling is now gone. The unnecessary delay by the Cabinet committee in coming out with a new imports program, and a continuing rash of crude price reductions in this area, have been the primary causes for what is now a feeling of pessimism."

—James S. Lauderdale
President
West Central Texas Oil & Gas Assn.

"The oil industry has been good to me, but I must say that I have never been too successful in my own drilling ventures. I've drilled a lot of holes, but never hit oil."

—Marion S. Church
Dallas oil attorney

"Let's quit trying to tell the world that we are broke down here in Texas. Nobody will believe it.

"I'm not about to let the natural gas interests pull the wool over the eyes of the people to make the financial picture [of state government] look worse than it is and bring a last-resort sales tax on this wonderful, rich state."

—Price Daniel
Governor of Texas

"And so the battle goes, proponents of hard competition saying that the best price is always the lowest price, and the soft competition advocates insisting that practically anyone who goes into business should be guaranteed a livable return.

"How to find a middle path between these extremes in today's highly competitive oil marketing is a problem which eludes complete solution. But of one thing most oil men are sure: Restriction of pricing freedom is not the answer."

—H. M. Gullickson
Manager, Pacific Coast area legal department
Shell Oil Co.

. . . and Letters

Dear Sir:

Perhaps one of the reasons for "Lube Sales Still Sliding" [PW—Jan. 30'59,p44] is that lube prices are too high . . .

A judicious price reduction might stimulate lube oil sales to the point where yearly net profits would increase.

I buy an average of 30 quarts a year. At 50¢ a quart, this is $15. However, I would be tempted to buy 42 quarts yearly if the price were 45¢ a quart. Thus, I would increase my yearly oil purchases from $15 to $18.90.

Sounds foolish, but American consumers have frequently reacted this way to price reductions.

George B. Ulvild
Kingsville, Tex.

Dear Sir:

Your article on "Lube Sales Still Sliding": Have the oil companies ever considered dropping the price of oil? It would help them.

H. J. Hoppler
Holyoke, Colo.

Dear Sir:

Just a short note to express both my satisfaction and my gratification for the excellent story on geochemistry [PW—Jan.23'59,p25].

Geochemistry has been so abused and mistreated for so long that the clear and honest light that you have cast on the subject can be only beneficial for the industry.

Martin J. Davidson
Houston, Tex.

Petroleum Week *will publish reader comments each week. Address letters to LeRoy Menzing, Editor,* Petroleum Week, *330 W. 42nd St., New York 36, N. Y.*

"An investor is not an exploiter. The modern enlightened political concepts of the free world make economic imperialism impossible. An investment is good only if it is mutually beneficial to the investor and the people of the host country. While the investor expects a return on the investment, the additional capital generated is plowed back into the host country to underwrite the continuation of industrial development."

Eugene Holman, Chairman of the Board, Standard Oil Company (New Jersey)

Esso

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Grant is the world's largest manufacturer of hole enlarging tools, developed during more than 30 years of experience providing oil men with the finest tools of the oil trade.

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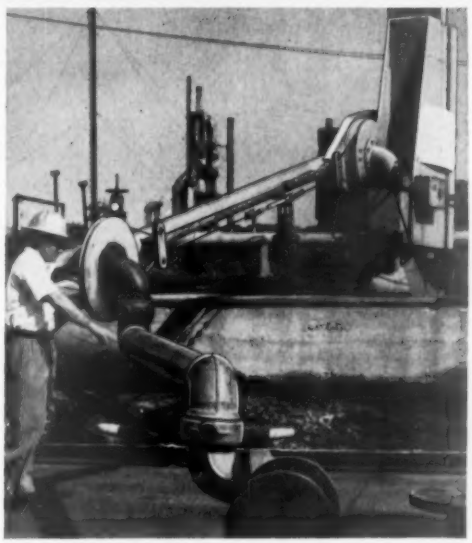
CHIKSAN

PREVENTS LINE HANDLING INJURIES
SPEEDS BARGE LOADING
ELIMINATES HOSE BURSTS
SLASHES REPLACEMENT COSTS

The Chiksan Barge Loading Arm ends hazardous manhandling of loading hoses, eliminates dangerous dock clutter. Mechanical operation makes hookup fast and simple.

Gear reduction enables one man to adjust the flange position anywhere in a 105° vertical range. Outboard arm is manually swung into position at any point in a 130° horizontal arc. The eight inch model rotates 360° to permit servicing barges on both sides of a narrow dock. Once hookup is made, the arm can be left unattended while free wheeling allows the unit to ride free during loading and unloading. When not in use, the arm is raised up and out of dockside traffic.

6″ x 25′ and 8″ x 28′ sizes available. Handle petroleum products, both black and bright, and mild caustics in any temperature ranging between —60° F. to +225° F. Service all river and lake barges and lake tankers including those in 25,000 barrel class.



The Chiksan Barge Loading Arm is designed to reach approximately 20 feet from dock riser to barge flange. Total length of Arm is 25 feet.

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Please send me your Barge Loading Arm Bulletin #456.

Name_____

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58-36

"On the road or off, our Ford tandem gets us there on time!"

says Mr. H. W. Stooksberry
Stooksberry Tank Co.
Lafayette, Louisiana

"We can't afford delays, and our new Ford T-700 provides the round-the-clock dependability we need.

"Our '59 Ford often runs 24 hours a day to meet the demanding schedules of this business. We haul six types of oil well testing equipment for both offshore and onshore work, and there's always a race against time on every job.

"This portable testing equipment is a big load, and one that pulls hard on the highway. At the wellhead, we often hit especially tough going. We stick with Fords for this work because our experience shows they do the best job, and do it fast and economically."

GO FORD-WARD for savings with '59 Ford Trucks!

Whatever your job . . . wherever you do it —you'll find Ford trucks are engineered and built to do it better! Whether you need a 4-wheel drive pickup like the one shown below—or a heavy-duty tandem similar to the one used by the Stooksberry Tank Co., you'll be *ahead* with a Ford. And for '59, there are even more reasons to invest in a Ford Heavy or Extra Heavy. You'll discover:

Greater operating economy with new, faster rear axle ratios and wider choice of transmissions.

More efficient parking brake of the internal expanding type has approximately 50% greater stopping and holding ability, requires less than half the operating effort needed for the previously used type.

Increased payloads and longer axle life with new, higher-capacity front and rear axle options.

Factory installed tractor package custom-fitted to Ford trucks equipped with air brakes for more dependable and safer braking.

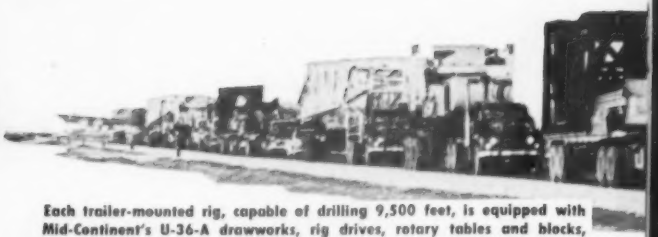
Yes, the new '59 Fords are here to take you *Ford*-ward for savings, *Ford*-ward for modern style and stamina. See your Ford Dealer today!

New Ford 4-wheel drive trucks available in ½- and ¾-ton pickup, stake and chassis-cab models. Ford-built at Ford's low prices. Available early 1959.

FORD TRUCKS COST LESS

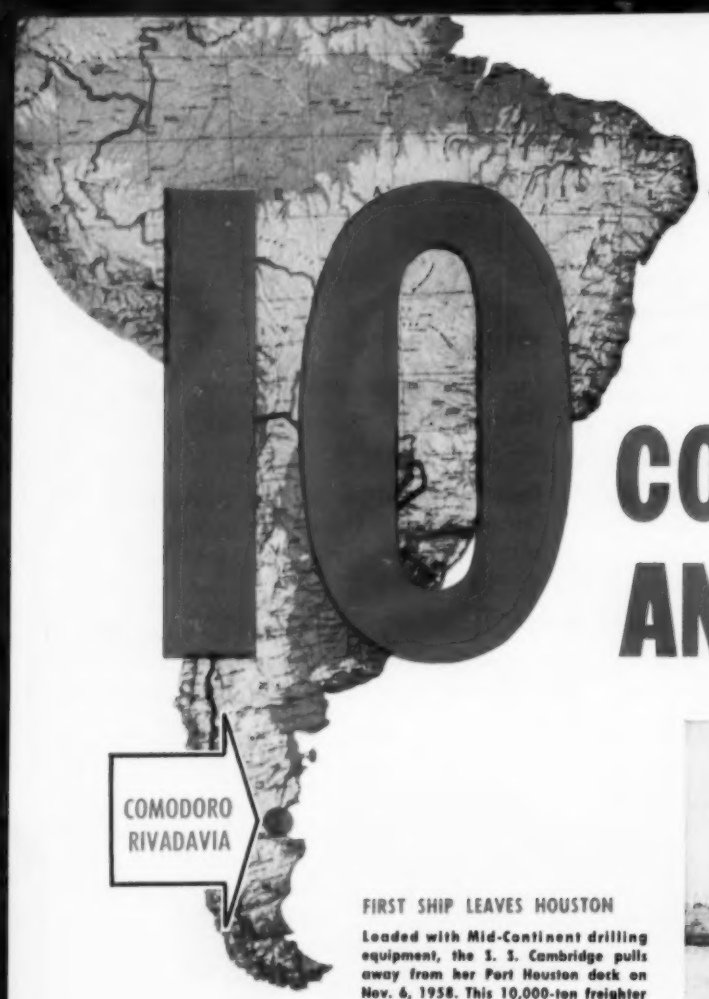
LESS TO RUN . . . LESS TO OWN . . . LAST LONGER, TOO!

Every Ford has SAFETY GLASS in every window



Each trailer-mounted rig, capable of drilling 9,500 feet, is equipped with Mid-Continent's U-36-A drawworks, rig drives, rotary tables and blocks, Cummins diesel engines, Emsco pumps and a 126-foot Lee C. Moore telescoping mast. Rigs, specially-designed for Argentine drilling, are fully-portable.

10 COMPLETE RIGS AND SHIPPED TO



FIRST SHIP LEAVES HOUSTON

Loaded with Mid-Continent drilling equipment, the S. S. Cambridge pulls away from her Port Houston dock on Nov. 6, 1958. This 10,000-ton freighter arrived in Argentina on Dec. 4 with the first three rigs.

MORE RIGS FOR ARGENTINA

The 10,000-ton S. S. Elderfields steams down Houston's Ship Channel on Nov. 24 with three more Mid-Continent rigs bound for Comodoro Rivadavia, Argentina. This shipment was delivered just after Christmas.

15,000-TON FREIGHTER LOADS UP

When the S. S. Dorian completed loading operations in Houston on Dec. 15, Mid-Continent Supply had shipped ten complete drilling rigs in an unbelievable 60 days! Most of this equipment is now in operation.

MCS-9

DESIGNED, MANUFACTURED ARGENTINA IN 60 DAYS!

...proof Mid-Continent Supply gives fast world-wide delivery!

Ten complete drilling rigs designed, manufactured and shipped in 60 days! This was the delivery feat accomplished by Mid-Continent Supply Co. recently for Loffland Brothers Co. One 15,000-ton and two 10,000-ton freighters were needed to transport the equipment to Argentina, where Loffland is drilling for Pan American International Oil Co.

The rigs, specially-designed and equipped for drilling in Argentina, are diesel-powered, fully-portable units mounted on dual trailers. Mid-Continent U-36-A drawworks, rig drives, rotary tables and blocks, Cummins diesel engines, Emsco pumps and Lee C. Moore masts were supplied for each rig by Mid-Continent. Each rig package also included portable mud tanks, drill pipe, rotary hose, wire line, diesel-powered trucks, and hundreds of other items necessary for efficient foreign drilling operations.

This was one of the biggest movements of equipment ever undertaken in the oil business. It was launched with the shipment of three complete rigs just 30 days after Loffland was assigned the drilling contract. The remaining rigs were shipped in groups of three and four at two-week intervals.

The assembly and shipment of these ten complete rigs in 60 days is further proof that Mid-Continent Supply offers fast, dependable delivery of drilling equipment anywhere in the world. No matter where the job is . . . no matter how big or how small . . . Mid-Continent has complete facilities.

MID-CONTINENT SUPPLY CO.

MID-CONTINENT BUILDING • FORT WORTH, TEXAS

Export Division: 45 Rockefeller Plaza, New York 20, N. Y. Cable: MIDCUMPORT NYK

THE WORLD'S LARGEST INDEPENDENT OIL FIELD SUPPLY COMPANY

Good Wells Make Good News

A Monthly Report on Wells That Are Now Worth More

February 20, 1959

Here are results of some recent fracturing treatments performed by Dowell, using three of Dowell's ten basic fracturing services.

- **Lea County, New Mexico** (New Oil Well) Pay zone was the Grayburg sand between 4190 and 4209 feet. On initial test there was no production. After a 500-gallon regular acid treatment, well tested only a show of oil. Operator ordered Sandfrac®, using 20,000 gallons refined oil with 40,000 pounds sand. Injection was down casing at 20 bpm and 2900 psi. After clean-up, well tested 300 bopd. Other wells in the area treated with only 10,000 pounds sand have tested only 135 bopd.

- **Bossier Parish, North Louisiana** (New Gas Well) This well made only a show upon completion. Perforations were from 6233 to 6244 feet into the Travis Peak sand. Operator suspected that loss of mud into the formation was blocking production. He had Dowell acidize with 1500 gallons Mud Acid, after which well flowed 460 mcfd into line. To increase production further he ordered Stratafrac®, using 3500 gallons acid-kerosene emulsion with 2400 pounds sand. This was followed by 500 gallons Dowell acid with a silicate control agent added. Over 60 days after fracturing, well was still delivering 1516 mcfd to the line.

- **Clark County, Illinois** (New Oil Well) This well, completed in a 15-foot section of the tight Trenton lime, made only a show of oil and gas. Operator ordered Riverfrac®, using 155,000 gallons water with demulsifying agent and 20,000 pounds sand. 150 pounds temporary plugging agent were also used. Injection rate averaged 40.6 bpm at 1800 psi maximum pressure. After clean-up, initial production was 70 bopd flowing.

- **Liberty County, Texas Gulf Coast** (Old Oil Well) This well was dually completed into two sections of the tight Frio sand. Perforations were 8944 to 8971 and 9013 to 9068 feet. Production had declined to 40 bopd. The operator decided to fracture both zones separately and ordered Stratafrac. The lower zone was isolated and fractured with 6000 gallons fluid and 10,000 pounds sand. Then the upper zone was isolated and fractured with 6000 gallons fluid and 15,000 pounds sand. After both zones cleaned up, production from the lower sand stabilized at 45 bopd and from the upper at 55 bopd. This was a net production increase of 60 bopd and the entire treatment cost was paid out in less than two months.

Your Dowell representative can help you select the best treatment for your well. If fracturing is indicated, he can help you decide treatment size, the fluid to be used, amount of sand, injection rate, etc. For detailed information or prompt service, call the Dowell engineer in your area. In Canada, contact Dowell of Canada, Ltd.; in Venezuela, United Oilwell Service. Or write Dowell, Tulsa 1, Oklahoma.

Services for the oil industry DOWELL
DIVISION OF THE DOW CHEMICAL COMPANY

60-Second Summary / WHAT'S HAPPENING IN OIL

AT-A-GLANCE PETROLEUM WEEK Copyright

February 20, 1959

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There is a refreshing stir of new offshore activity. For the first time in 18 months the outlook has brightened. Reason: The sharply rising production of gas and condensate makes the area appear more inviting. For a complete look, see Special Report/Offshore. . . . p. 54

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Crude price cuts, which started in the U.S. 20 months ago, have spread to the Middle East. Because it is the largest oil exporting area, Mideast price cuts—the first general reductions there—may have an impact elsewhere. . . . p. 19

•

A mandatory imports plan appears likely—but the terms are uncertain. The Administration, with a deadline only a week away, is still struggling with the problem, but still lacks some answers. . . . p. 23

•

More and more oil firms are opening branch offices in New York City. With the pace of international oil buying and selling on the upswing, New York appears to be a key place for those with an interest in world markets. . . . p. 21

•

Economical "automation" will operate a Gulf Coast gas processing plant at night, and only four men will be needed for daytime checks and maintenance. . . . p. 85

•

A promising oil region may be developing in the remote Beatton River-Milligan Creek area of northeast British Columbia. Development has been slow, but recent discoveries have brought increased activity. . . . p. 29

•

The area straddling Borden and Garza Counties has become a top drilling spot in West Texas. Recent discoveries have extended production in all directions. Wildcat interest is high. . . . p. 34

•

The Air Force wants more oil storage terminals in less-vulnerable locations. So it is seeking help from oil firms in shifting storage to nontarget areas. . . . p. 100

•

There are varying views on whether Russia poses an oil threat. Some feel that the Soviets will use oil as a wedge in their efforts to penetrate world markets. Others believe Russia's own growing oil needs will prevent this. . . . p. 22

•

Argentina's petroleum imports are expected to move downward from the 1958 peak. Increased domestic crude will fill a larger share of the nation's oil needs. . . . p. 104

Up to the Minute / SIGNIFICANT LATE NEWS

AT-A-GLANCE PETROLEUM WEEK

February 20, 1959

Soviet shipments of crude through the Suez Canal are climbing. A report by the Suez Canal Authority shows that Russian oil shipments southbound averaged 47,000 b/d last December, compared to 8,000 b/d in December, 1957. From Rumania, the daily average was 16,000 b/d in December, 1958, compared to only 1,000 b/d in December, 1957.

Tanker traffic in general through the canal seems to be increasing. In December, the daily average of tanker passages was 27.2—an increase of 9.2% over the same month of 1957. The average net tonnage was also slightly higher.

•

An attempt to tiptoe S. 11 (an anticompetition bill) past a Senate subcommittee has failed. Sen. Estes Kefauver (D., Tenn.), sponsor of the bill to overturn "good faith" as a defense against price-discrimination charges, had tried to get the bill approved by his antitrust subcommittee without hearings. But other committee members balked. Hearings will start Mar. 17.

•

One strike ended this week and another started. At Wood River, Ill., the Shell Oil Co. refinery was reopened after a two-week strike by 11 craft unions. At Okmulgee, Okla., 125 members of the Oil, Chemical & Atomic Workers Union walked out of the Phillips refinery after a dispute over contract terms.

•

The fourth quarter definitely marked an upturn in the economy, an increasing number of oil company financial statements show. Among the latest to report, Sinclair Oil Corp.'s net of $49.5-million for all of 1958 was 34.3% below 1957. At the end of the first nine months, though, Sinclair's earnings trailed 1957 by 40%. Also Indiana Standard with a 1958 net of $117.8-million was 22% under 1957, while its nine-month profits had been off 24%.

•

Price shading for Oklahoma sweet oil, which started last fall, continues. This week Indiana Oil Purchasing cut its top postings 3¢, to $3.05 a bbl. It also raised the differential for below-36-gravity crude to 3¢ per degree.

•

Union Oil and Ohio Oil will do exploratory drilling on a 229,000-acre tract in Alaska. Under terms of a four-year contract approved by the Interior Dept., the firms will spend at least $450,000 and drill three exploratory wells. The acreage is in the Knik Arm area, off Cook Inlet.

•

The effects of dual distribution in oil marketing will be studied by the Senate Small Business Committee. Two subcommittees will hold a joint hearing, although no date has been set. Sen. Hubert Humphrey (D., Minn.) probably will head the investigation. In the past, the committee has been critical of the distribution practice under which a supplier often competes with wholesalers and retailers.

" . . . supply stores have not faltered in giving good service"

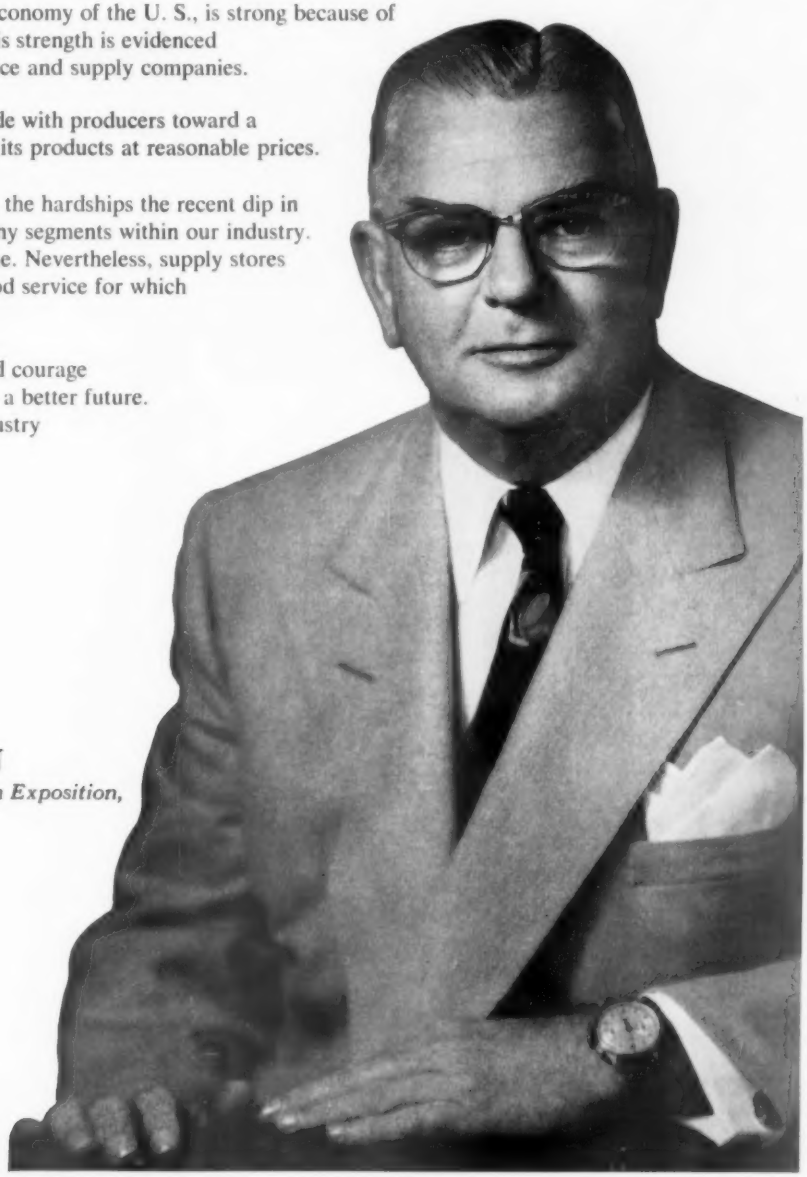
"There are Prophets of Gloom who continuously cry that 'We are running out of oil.' I am not one of them because I am firmly convinced that America will not run out of oil in the foreseeable future—provided our system of private enterprise is allowed to take its natural course.

"The oil industry, like the overall economy of the U. S., is strong because of such a system. One example of this strength is evidenced by the industry's equipment, service and supply companies.

"Those companies strive side by side with producers toward a common goal: Adequate oil and its products at reasonable prices.

"All of us in the industry recognize the hardships the recent dip in the oil activity has worked on many segments within our industry. The supply industry is one of these. Nevertheless, supply stores have not faltered in giving the good service for which they long have been noted.

"This is the type of doggedness and courage that licks problems and builds for a better future. And, certainly, the petroleum industry has a great future."



MR. W. K. WARREN

President, International Petroleum Exposition,
Chairman of the Board and
Chief Executive Officer,
Warren Petroleum Corporation

P.E.S.A.

PETROLEUM EQUIPMENT SUPPLIERS ASSOCIATION

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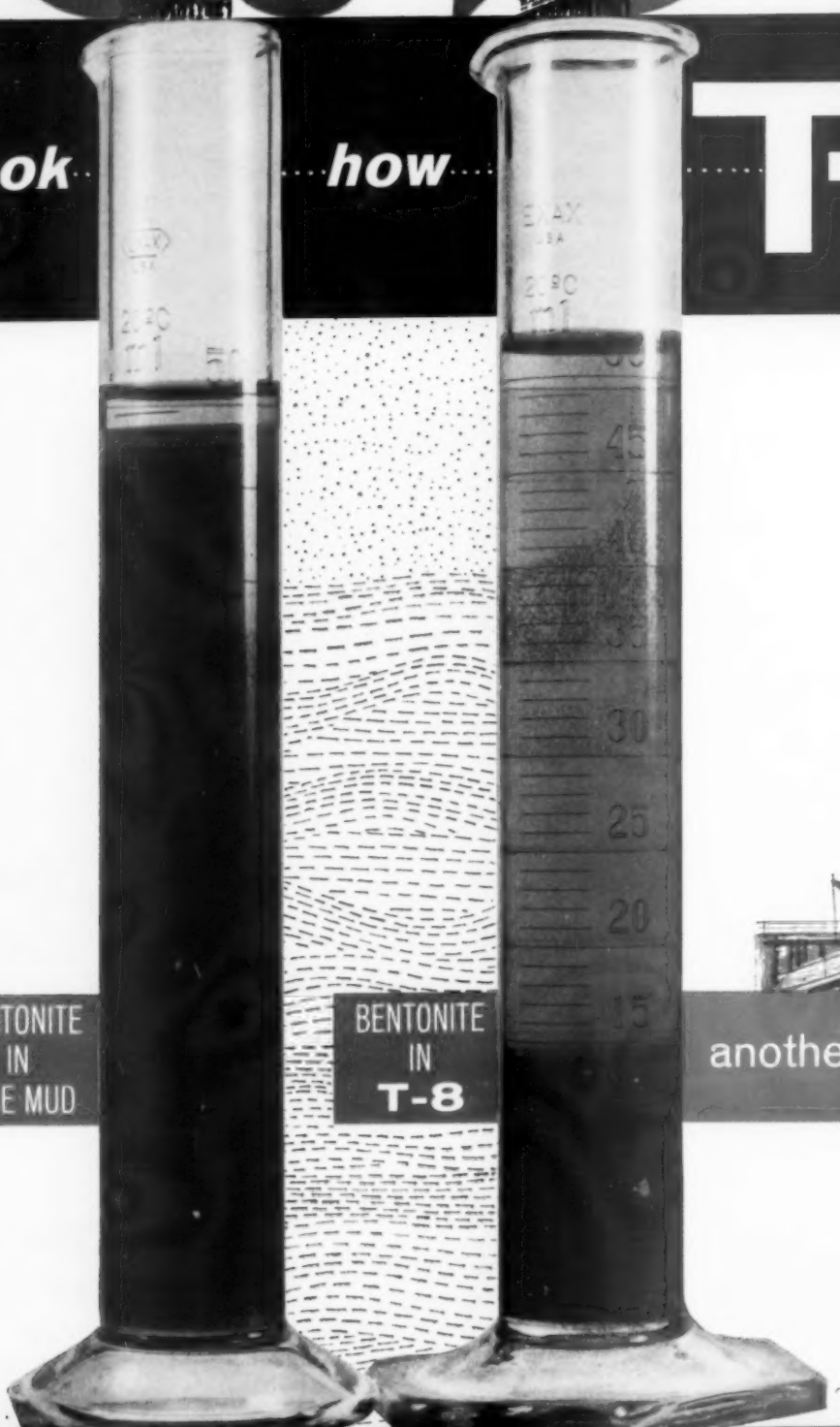
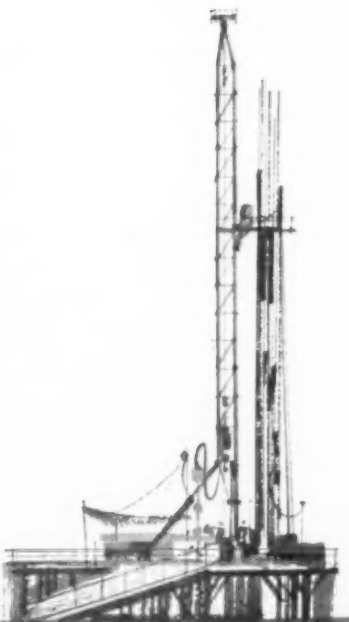
well a well b

Look ... how ... T-8



BENTONITE IN LIME MUD

BENTONITE IN T-8



another *well done*

....and Magcobar engineering cut mud cost on well b

NEW ORLEANS AREA

	depth	type mud	weight mud	cost of mud
a	13,600 ft.	Lime	15.6 lb./gal.	$130,000
b	13,590 ft.	T-8	15.6 lb./gal.	$ 65,000

All along the Gulf Coast, savings have been substantial using T-8 instead of other muds in drilling shale formations. The secret of T-8, as the graduates to the left show, is that it reduces the hydration and dispersion of solids, minimizing the build-up of formation solids in the mud system.

With other muds, shale solids become part of the drilling fluid, increasing the viscosity. Water, added to reduce viscosity, lowers the mud weight, and new barite must be added. The additional barite and water increase the volume, so that expensive mud is jetted. With T-8 you can maintain good mud properties with less jetting, less barite, and at impressive savings.

The successful field performance of T-8 confirms Magcobar's basic approach to drilling fluid problems: Developing better products to solve specific drilling problems, and training better mud engineers to insure the highest level of performance from these products.

T-8 is only one of Magcobar's many answers to the problem of high drilling costs. The right products *used right* by Magcobar can cut costs on your next well, too.

Wherever your drilling operations, you can use Magcobar engineering and products. There are more than 500 stockpoints in the U.S. and Canada. Elsewhere, write Foreign Operations, P. O. Box 6504, Houston, Texas.

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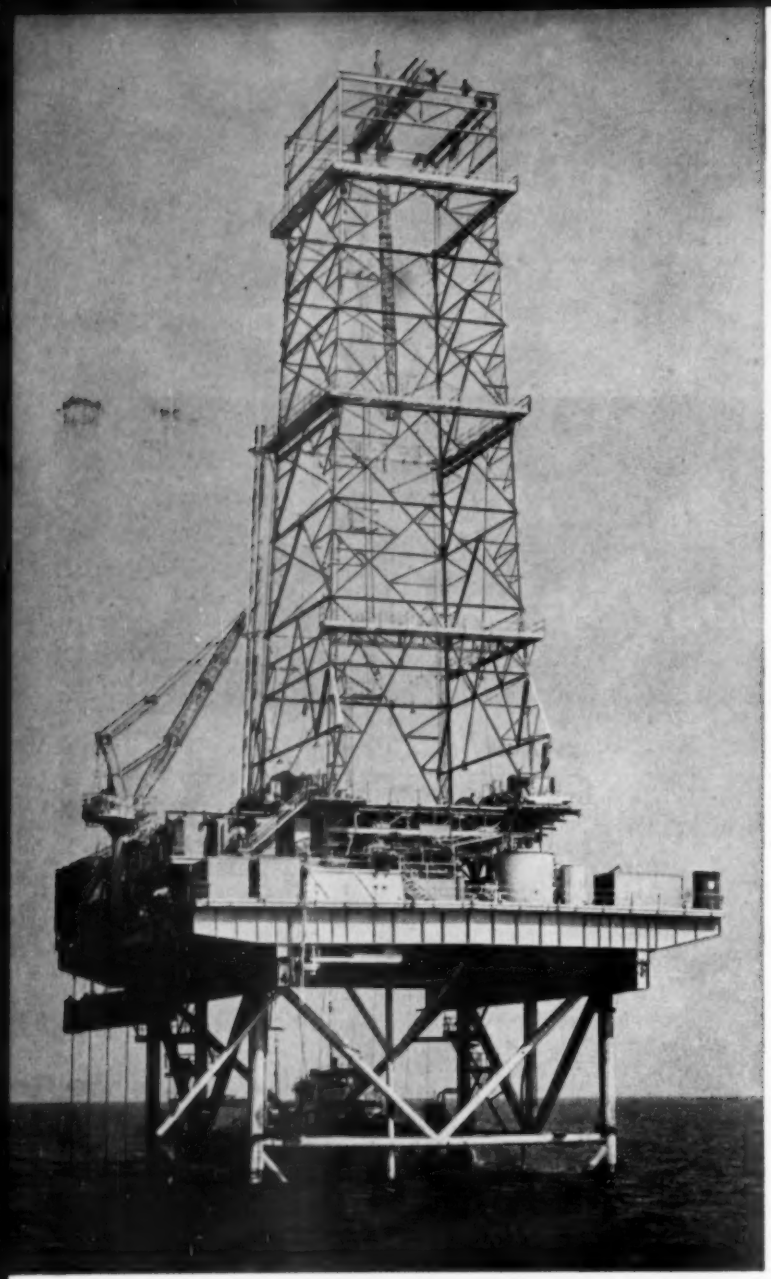
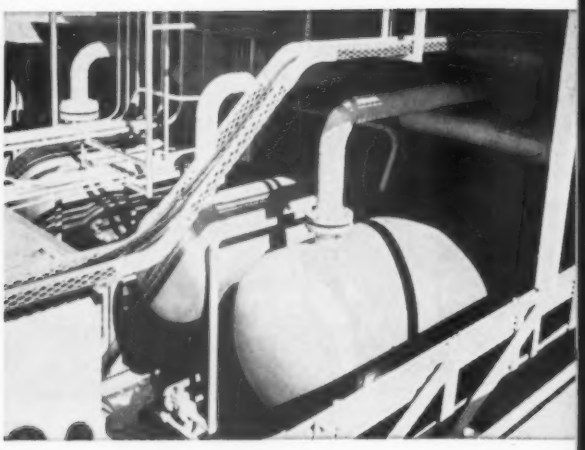
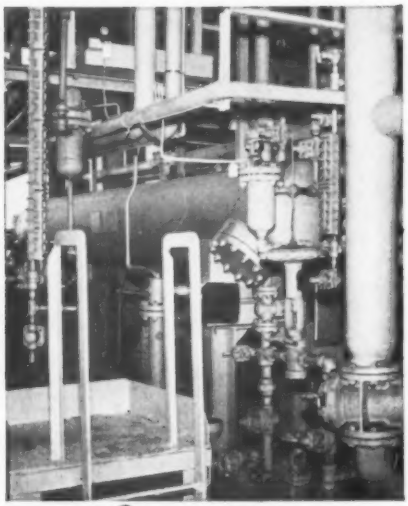




BS&B EQUIPMENT GOES TO SEA



In 100-ft. deep water two miles offshore from Summerland stands California's first permanent-type drilling platform. Equipped with twin crown blocks, this 1,000-ton structure is capable of drilling two wells simultaneously, and will drill up to a total of 25 wells from its present location.

On an installation of this kind, space is at a premium. Aboard the platform the BS&B horizontal production separators with BS&B controls were specially designed to provide compactness, minimum maintenance, and heavy-duty service.

BS&B

ANOTHER EXAMPLE OF PRODUCT LEADERSHIP

BLACK, SIVALLS & BRYSON, INC., DEPT. I-EU2, P. O. BOX 1714, OKLAHOMA CITY

Mideast Crude Prices Cut Sharply

Prices of Middle East crudes headed downward this week by 15¢ to 19¢ a bbl.—the first general reduction for all grades in the world's largest oil export area.

The move—anticipated for some time—was initiated by British Petroleum Co., the largest supplier of Middle East oil.

Its subsidiary, BP Trading, Ltd., reduced all of its f.o.b. postings 18¢ a bbl., effective Feb. 13.

Previous price cuts in the Middle East have been limited to specific crudes, or to Mediterranean export prices, the latter geared to changes in the differential between tanker and pipeline rates.

The move made the new price schedule range from a low of $1.62 a bbl. for Iranian heavy (31.0- to 31.9-gravity) at Abadan to a high of $2.31 for 36-gravity Iraq crude at Mediterranean loading ports.

Kuwait crude, the largest-volume Middle East oil, accounting for 1.4-million b/d of the area's 4.2-million b/d, was trimmed to $1.67 a bbl. for 31-gravity at Mina-al-Ahmadi.

Qatar crude (40-gravity) was reduced to $2.03 a bbl. at Umm Said.

There are some indications that deeper Midde East price cuts may be yet to come.

The first company to follow the BP reduction—Esso Export Corp.—made sharper cuts on some grades.

The Jersey Standard affiliate reduced stabilized Arabian crude by 19¢ a bbl. at Ras Tanura. It also put the crude on a flat posting, making the f.o.b. price $1.89 for "about 34-gravity."

The previous posting was $2.08 for 34-gravity.

Esso Export also initiated a 15¢-a-bbl. cut for Safaniya crude, reducing the price at Ras Tanura to $1.50 a bbl. for "about 27-gravity." That crude previously had been posted on a gravity differential scale, with 27-gravity crude listed at $1.65 a bbl.

Esso Export, while meeting BP's competitive 18¢ cut on other Middle East oils, switched to flat postings on three of them—Basrah crude at the Persian Gulf and other Iraq and Arabian crudes at the Mediterranean.

Esso Export's switch to flat postings for six Middle East oils gives the company trading flexibility over other sellers.

By use of flat postings, the seller could, at a buyer's request, substitute a higher-gravity crude than the approximate gravity listed on the flat posting for a particular crude. This amounts to a price discount of 2¢ a bbl. for each degree of gravity differential, based on the former prices on a gravity scale.

Also, the 19¢-a-bbl. cut on Arabian crude at Ras Tanura removes 1¢ of the 17¢ premium that Arabian crude previously carried over Kuwait crude—a differential based on the longer tanker haul to Mina-al-Ahmadi, the Kuwait loading port.

The price cuts, observers predict, won't necessarily eliminate the discounts that have been prevalent on Middle East crudes for some time. Such discounts could, of course, lead to other reductions in f.o.b. prices.

The discounts took the form of price concessions for quality, freight allowances on delivered prices, recharters of vessels on a favorable basis to an f.o.b. buyer and "spiking" of crude with gasoline or gas oil.

More recently two of the largest offtankers of Arabian oil—Standard—Vacuum and Caltex—offered straight 10¢ discounts to buyers in Japan.

While a big majority of Middle East crude sellers had not met the lower prices at midweek, there was little doubt that they would follow.

Over-all, 25 different entities post f.o.b. prices for various Mideast crudes. Some are very small suppliers.

The lower postings initiated by BP and Esso, which cover all grades of Middle East oil, are enough, observers say, to force all suppliers down.

There is open speculation as to whether the Mideast price cut is the end of one "round" of reductions—or the start of another.

The surprising factor, some oil men say, is that it took so long for formal postings to be trimmed. The move to lower crude prices started in the U. S. 20 months ago, and this month spread to Venezuela, where reductions from 5¢ to 15¢ a bbl. were made.

The basic factor behind the Middle East price cut is oversupply—the same factor that has helped cause price declines in the U.S. and Venezuela.

A worldwide oversupply of crude has existed during most of the past ten years, offset only temporarily by such emergencies as the Korean War and the "nationalization" of oil producing concessions in Iran.

In the long run, though, such emergencies, which required stepped-up production in the major producing areas, only served to compound the over-all supply problem.

For, after each emergency, the stepped-up production was not curtailed, even though it was apparent that it all could not be absorbed by demand.

Excess tanker fleets also served to keep the total volume of supply that

Free World Demand Continues Upward

(Figures in Thousands of b/d)

	1957	1958	1959	% Change '58 vs. '57	% Change '59 vs. '58
Free World Total	**15,834**	**16,620**	**17,575**	**+ 5.0%**	**+5.7%**
Eastern Hemisphere	**4,770**	**5,232**	**5,688**	**+ 9.7**	**+8.7**
West of Suez	3,133	3,505	3,830	+11.9	+9.3
East of Suez	1,637	1,727	1,858	+ 5.5	+7.5
Europe	2,713	3,101	3,404	+14.3	+9.8
Asia	1,591	1,692	1,822	+ 6.3	+7.8
Africa	466	439	462	— 5.7	+5.0
Western Hemisphere	**11,065**	**11,388**	**12,009**	**+ 2.9**	**+5.5**
United States	8,797	9,023	9,500	+ 2.6	+5.0
South America	1,219	1,277	1,365	+ 4.8	+6.8
North America (ex U.S.)	1,049	1,088	1,144	+ 3.8	+5.1

moved into world markets at a high level, since greatly depressed rates attracted the movement of a substantial volume of oil.

The current oversupply is such that some observers predict it will have a depressing effect on crude prices for several years.

The more pessimistic estimates are that, at the present rate of growth of both supply and demand, five years may be required to dry up the world-wide surplus of oil.

The oversupply exists despite a continued upward spiral in free-world demand, which this year is expected to rise 5.7% to 17,575,000 b/d.

The gain anticipated in 1959 (table, page 19) is about in line with the growth trend of world demand of the past several years.

While U.S. demand, which now accounts for 54% of the free-world total, is expected to rise by 5% this year to an average of 9.5-million b/d, a gain of 7.9% is estimated for the free foreign areas. Last year's demand in those areas was 8% over 1957.

Total free-world demand outside the U.S. is expected to average 8,197,000 b/d in 1959.

In Western Europe, where demand has been particularly strong during nearly all of the past 12 years, demand is expected to expand 9.8% this year, on top of a 14.3% gain in 1957.

The European volume of demand is estimated at 3.4-million b/d, or about 60% of the Eastern Hemisphere total, and 19% of the free-world demand.

Demand in Asia, while relatively small volume-wise (1.8-million b/d in 1959), will show a rise of 7.8%, according to estimates of international petroleum marketers.

In all areas East of Suez, demand in 1959 is expected to be 1,858,000 b/d, up 7.5%.

In the Western Hemisphere, where over-all demand is expected to rise 5.5% this year, the biggest gains will occur in South America.

Present estimates indicate a volume in South and Central America of 1,365,000 b/d, up 6.8%.

In North America outside the U.S., demand is estimated at 1,144,000 b/d, up 5.1%.

In addition to its effect on prices, the oversupply will have an impact on drilling, both abroad and in the U.S.

Sharply curtailed producing rates during most of 1957 and 1958 have improved the domestic drilling outlook to some extent, and some improvement in drilling is expected in 1959.

But abroad, the general drilling outlook isn't too bright.

In Venezuela, the most active foreign area, drilling in 1959 and 1960 will not be up to the 1958 level, due both to oversupply and to the recent hike in income taxes.

Some Venezuelan operators, including Creole Petroleum Corp., the largest producer there, are reportedly planning to trim 1959 drilling budgets.

Other companies are known to be studying reductions in capital as well as operating budgets to account as much as possible for the premium the recent income tax increase attached to Venezuelan crude entering world markets.

Prior to the tax hike, contained in a decree issued in December, indications were that Venezuelan drilling in 1959 might take an upward swing, based to a great extent on the initial successes of some of the newcomers to Venezuelan exploration.

But the tax hike, coupled with the continued squeeze oversupply puts on new crude sellers, just about kills any chance of increased drilling.

Elsewhere in South and Central America, over-all drilling activity is not expected to show much gain except, notably, in Argentina.

Increased activity in Argentina is guaranteed for this year by the development contracts private operators have signed with the government oil company. In addition, Argentina is opening bids this week for drilling of thousands of wells by contractors, though it's not clear yet just how many will be acceptable.

But in the other areas the chances of increased drilling are slim.

In the Middle East, the new onshore and offshore concessions will lead to a gradual upswing in drilling, though the over-all area may not show a gain this year.

The gains, when they come, will be noticed primarily in Kuwait, the Neutral Zone, and Iran.

In the Far East, the incentive to drill is tempered by the type of heavy crude found in most recent ventures. A lack of promising areas to drill is another depressing factor.

Drilling activity in areas of Africa, already at a high level, is likely to be stepped up this year.

Oil Man's Album

Helicopters Are Okay, But Time Was When . . .

Back in oil's early boom days, a team of wiry, tough mules often provided the most reliable means of transporting a crew to a rig location—if the mules didn't balk. In this scene, a crew which called itself "The Hot-Shot Boys" gets set to go (slowly) to a location near Van, Tex.

(No. 23 in a Petroleum Week series)

As U.S. companies look for opportunities to buy and sell oil and oil products in international markets . . .

More Firms Eye New York

Several oil companies have opened sales offices in the New York marketplace to become competitive in foreign markets. And others plan to follow suit soon.

Some companies feel they have to have offices in New York to sell surpluses of foreign crude. At the moment, probably more international buying and selling of oil and oil products takes place in New York than in any other city in the world.

Surplus foreign crude can be attributed in part to independents that have become producers on new overseas concessions, and now have to sell what they're producing. The situation is further complicated by large excess capacity in the hands of majors.

With such sharp competition, sellers can no longer wait for buyers to seek them out.

"If buyers would come down here [Houston] and knock on our door, then we wouldn't have to open offices in New York," one executive told PETROLEUM WEEK. "But no one seems to be coming to us."

These companies anticipate trouble selling crude in 1959 because of expected increases in foreign crude production during the year, and tighter markets.

Production in the Middle East will probably be 20% over 1958. And, presumably, 1959 will be the pay-off year for Venezuelan concessions that majors and independents acquired in 1956 and 1957.

But U.S. import restrictions are expected to keep a substantial portion of this crude out of this country. And in Europe, the Soviet Union has been fairly successful at underselling American oil companies, or at offering attractive trade deals that are difficult for European countries to refuse.

In South America, the Russians have arranged a barter deal with Brazil for 1959. Simply, Brazilian coffee will be exchanged for Russian oil. Last year, a semibarter deal was carried out with Argentina.

This Soviet competition is making it increasingly tough for U.S. firms to sell their excess crude abroad.

At the end of 1958, Standard Oil Co. (Ind.) set up a foreign sales subsidiary, Amoco Trading Corp., in New York.

At present, Indiana Standard doesn't have any of its own crude to sell internationally. But 1959 may be the year when the company's new concessions in Venezuela start producing, and wildcatting on its new Middle East concessions starts. In the meantime, Amoco Trading will buy and sell any company's crude to get markets lined up.

Continental Oil Co. moved its foreign department, and the vice-president in charge of that operation, to New York around the first of the year.

Although the New York office includes all production functions of a foreign department, it will also handle foreign sales.

At present, Conoco has foreign concessions in Venezuela, Libya, Guatemala, and Canada. Conoco executives say that the company's increased interest in foreign operations over the past three years has made a New York office a necessity.

Howard H. Hinson will head the department, which will also use the services of Ira A. Cram, senior vice-president and chairman of the executive committee, and Serge B. Jurenev, assistant to the president and a director. The company says that Cram will continue to establish broad policies for Conoco's domestic and foreign operations.

A lawyer, a landman, and a financial advisor will function under Hinson.

Superior Oil Co., one of the bigger independents in Venezuela, is planning to open a New York sales office shortly.

At present, Superior doesn't know how large its New York staff will be, but hopes that the operation will be profitable enough to require a large staff.

W. H. Mengdon, Superior's president, says his company has to open a New York sales office to stay competitive.

Gulf Oil Corp. has established duplicate executive offices, with a full-time crude oil representative, at Canada House, in Manhattan.

Gulf has always kept a full-time staff in New York as well as at its headquarters in Pittsburgh. But now the president will have working facilities of his own here, as well as in Pittsburgh.

With the formation of Gulf Eastern Co., which handles Eastern Hemisphere crude sales, the parent company now handles only sales in the Western Hemisphere. The crude representative in New York is responsible to the head of the crude oil department in Pittsburgh.

At the end of 1958, Phillips Petroleum Co. announced that it would open New York offices to sell crude, petrochemicals, and diversified technical services abroad.

With Phillips' increased foreign concessions in the last two years, the company hopes to have more crude to move soon. And since the company diversified into the petrochemicals and chemicals industries over the past few years, it also has a variety of products to market.

The New York office will be a one-man operation until the manager has the organizational planning worked out.

Other companies are also adding to or organizing foreign petrochemical sales departments in New York.

At the end of last year, The Texas Co. surveyed the possibilities of producing and marketing petrochemicals in South America and Europe. The company feels that its purchase of Trinidad Oil Co. two years ago has now made a petrochemicals program in South America possible. Last week, the company appointed a new vice-president to be in charge of foreign petrochemicals.

Amoco Chemical Corp. recently moved its export marketing department to New York. Previously, the department was at the company's home office in Chicago. Says Amoco: "This move is designed to give the company's overseas customers easier and more direct and rapid contact with the company."

Is Russian Oil Threat Underrated . . .

There is a growing conviction in some U.S. oil circles (1) that Russia will attain its ambitious domestic oil goals, and (2) that Russia will increase its penetration of world oil markets.

The probability of such a lengthening Soviet shadow across the world oil picture was discussed this week by two qualified observers.

They were Ivan S. Salnikov, chief petroleum engineer of Standard Oil Co. (N.J.), and H. W. McCobb, vice-president, Standard-Vacuum Oil Co.

The two were among the speakers at the annual meeting of the American Institute of Mining, Metallurgical & Petroleum Engineers, in San Francisco.

Salnikov noted that Russia's state-fostered petroleum technology has been developing rapidly, thus providing a basis for domestic oil growth.

McCobb, discussing foreign operations in general, pointed out that political and economic factors are providing the principal push to Russia's oil moves abroad.

One of the big reasons why Russian oil is becoming attractive to others is that Russian oil can be obtained on a barter basis.

To the buyer, this means saving hard currency reserves. And, in many instances, it also means he can swap to the Russians goods which could not be sold readily in the world market.

The Russians, keenly aware of this, go to considerable lengths to make such barters possible. For instance, they are willing to accept wheat from Canada in exchange for crude, even though they don't really need the wheat.

Furthermore, the Russians have shown willingness to make price concessions.

With a government-controlled economy, they can cut the price to fit the need. And they are apparently now ready to do so whenever such a move appears politically expedient.

However, the "any price" approach may eventually lead the Russians into a ticklish position with Arab oil states.

Here's why, as McCobb sees it: "As Russia increases her exports, she will be in direct competition with the Arab states, perhaps displacing some Arab oil.

"It will be interesting to see what effect this will have on Russia's relations in the Middle East, and on her pose as the No. 1 Arab benefactor and professed guardian angel of Arab nationalism."

As for Russia's oil progress at home, the rapid strides the Soviets have made in recent years indicate that the goals now set are attainable.

The Soviet production target for 1965 is 4,800,000 b/d of crude and 14.5-billion cu. ft. a day of natural gas.

This would mean a crude production increase of slightly over 14¢ per year for the seven-year period.

Can the Russians do it? Well, Salnikov points out that they exceeded the 14% growth rate in 1955 (18%) and again in 1956 (17.8%).

"In the light of their recent annual increases in production, the goals do not appear unattainable," Salnikov says.

He calls attention to the emphasis the Russians have given to improving their drilling and production techniques, citing the development of the turbodrill as an example.

Even so, the Russians have technological problems that hinder their progress.

For one thing, says Salnikov, they apparently put too much reliance on the turbodrill technique, and lack good-quality drill bits.

"Under the weights and speeds encountered in turbodrilling, drill bits simply do not stand up," he says.

Another big problem appears to be the lack of over-all back-up facility to support a full-going drilling effort.

"Compared to our best rotary performance, which can maintain over 50% of the time drilling on bottom, time analysis of Russian drilling shows only an average of 11%," Salnikov explains.

As in the U.S., Russian oil men are making a concerted drive to increase efficiency and trim costs.

They are, according to Salnikov, giving particular attention to automation, improved planning through decentralization, and an improved exchange of technical information between Russia and the Free World.

. . . Or Is It Being Overrated?

Some oil experts, while conceding that Russia is putting heavy emphasis on oil development, still do not foresee any big inroads of Soviet oil into world markets.

This line of thought is borne out in a detailed, analytical study made by an international oil firm. The results of the study were made available to PETROLEUM WEEK, but with the understanding that there would be no attribution.

The study was not limited to oil. Instead, it covered general Soviet aims in industrial and agricultural development, Russia's growing domestic requirements, and the problems that nation will encounter in seeking to increase East-West trade.

It is pointed out in the study that any evaluation must take into consideration the availability of Soviet goods for export, and the acceptability of these goods in world markets.

On each count—availability and acceptability—Russia does not appear to be in or near a position to make a major, sustained drive into world markets, the report concludes.

This appears to be as true of oil as of any other Russian product or resource—perhaps even more so.

In the first place, Russia's own need for oil is likely to keep pace with increasing production, leaving relatively little for export.

In recent years, energy shortages have hindered Russia's economic development, and Soviet planners appear determined to remedy this defect.

There is little doubt, therefore, that domestic demand for energy will be very heavy—and will be met primarily by increased oil and natural gas supplies rather than from some other energy source.

Too, because the Russians are seeking a "balanced" development of their domestic economy, there is some doubt that the Soviets would deliberately plan a large energy surplus simply to be used as a weapon in a trade war with the West.

Furthermore, Russia's satellites in Eastern Europe are not, on the whole, well endowed with energy resources.

This, to some observers, means that surplus Russian oil in the future will necessarily be earmarked first for the satellites before really large-scale exports to Free World nations could be undertaken.

Currently, the net energy surplus of the Soviet bloc is quite small—only around 2% of its total energy production. And some observers speculate that by 1960 even this surplus will have vanished. And after 1960, the

satellites may become small net energy importers.

The argument is also advanced that the shifting geographic center of Russian oil production tends to make large-scale oil exports unlikely.

In 1940, for example, the producing fields of the north and south Caucasus (including well-known Baku) accounted for about 70% of Russian production. But that already has declined to about 20% as the center of production has moved to central European Russia. There the large number of fields in the Volga-Urals area have been termed "the second Baku." There are predictions that by 1960 this area will produce at least 70% of Russia's total.

This shift creates a major transportation problem for the Russians in getting the oil to the main industrial centers.

And because of the difficulties of moving oil from the "second Baku" to Black Sea ports, experts reason that the bulk of Russian oil exports would have to come from the Caucasus fields.

It may be that the Russians are using their oil deals more for propaganda purposes than as the basis for a long-range campaign to build foreign trade.

This is the view expressed in the oil firm's private report. It says that it expects Russia to continue trading with countries that, for both economic and political reasons, attract Soviet interest. However, it feels these will be on a spot basis, and are not likely to involve substantial, continuous outlets for Russian oil.

It notes that most existing trade agreements are short ones.

There is also some doubt that Russia will make substantial use of an "any price" campaign to win markets.

In the report, attention is called to the Russian practice of varying prices according to the type of transaction involved. And, whereas the Russians have shaded prices on occasion, they have driven hard bargains in other instances, where the buyer was not in a good bargaining position.

The conclusion of the report is that, while it is apparent that Russian oil exports will continue, they are apt to fluctuate widely from year to year as the Soviets shift their tactics to meet specific situations.

A basic assumption of the report is that the Russian oil production program is planned primarily to meet internal requirements. If this is correct, it would indicate no appreciable change in the present pattern, as far as world markets are concerned.

Import Plan Is Still Vague

With a Feb. 28 deadline nearly upon it, the Administration apparently is still groping for a solution to the imports control problem.

Last December, when it faced a similar situation, the Administration —in a last-minute move—postponed the showdown temporarily by extending the voluntary program through February.

The stated purpose was to give government planners more time to work out a "permanent" program.

At midweek this week, it appeared that a mandatory program was quite likely—but some major points of such a plan were still unsettled.

Washington observers were speculating that no new announcement would be forthcoming before the deadline day itself—and that even then it might be another stop-gap plan.

A flurry of speculation was created when all known importers were asked to list all crude and products they had imported from 1951 through 1958.

The request was made last weekend by Imports Administrator Matthew V. Carson.

Carson, in a letter with the questionnaires, said the new program may include products and derivatives as well as crude. However, he did not commit the Administration to any specific course.

Some interpreted the request as an indication that the position of "historic" importers will be recognized in any new plan.

Otherwise, they theorized, why is the government interested in knowing what quantities each company imported since 1951?

Also, they recalled that the Administration last December had been on the verge of adopting a plan which would have given "established" importers 50% of the imports total, with the remainder being distributed on the basis of refinery runs.

There is reason to believe that opposition to a "historic importers" approach within the Administration is dwindling.

The Justice Dept. originally opposed any program tending to "freeze" competitive positions. But indications now are that it is no longer so adamant.

And as for the request by Carson serving as a straw in the wind to indicate the government's course, it is noted that a short time ago refiners were asked by telegram to agree to making their refinery runs public. This indicated that a plan tied solely to refinery input was being given consideration.

The dates in the recent request to importers—1951 through 1958—caused some to wonder if that period is being considered as a base period for a new plan.

Again, however, there appears to be no real reason to suppose that the government's action was anything more than an effort to compile more information in its desperate search for a new program.

The divergence of views on what to do is again being demonstrated as the government seeks to determine once more whether the rate of oil imports is a threat to national security.

This stems from the study being made by the Office of Civil & Defense Mobilization.

It asked for comments—and it got them. They came from established importers, from new importers, from would-be importers, from brokers, from producer spokesmen, from marketing associations, from small refiners.

There were pleas for special exemptions—such as residual fuel, asphalt crudes, and light distillates. And there were protests against any special exemptions.

For the most part, what the comments prove is that views within the industry aren't changing much. If there is a ground for compromise, it didn't show up in the comments.

Most observers feel that OCDM is virtually certain to recertify that imports do constitute a threat and should be controlled.

The reason for the study in the first place, they feel, was to clear the legal path for further government action on imports controls.

Only trouble is, no one yet knows what that path will be.

editorial index

The index to the editorial contents of Petroleum Week, covering the issues published from July to December, 1958, inclusive, will be ready for distribution in about two weeks. Single copies will be available to subscribers without charge. Readers who have previously asked to be placed on the permanent mailing list will receive the index automatically. Others may address requests to Editor, Petroleum Week, 330 West 42nd Street, New York 36, N. Y.

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What's New / IN THE INDUSTRY

The Justice Dept. hopes to bring the "oil cartel" case to trial in September or October, according to Victor R. Hansen, antitrust chief. The suit, filed six years ago, charges that California Standard, Jersey Standard, Texas Co., Socony, and Gulf created an "international cartel."

•

The Alberta government apparently is willing to permit a nuclear blast in the Athabaska tar sands. A spokesman said this week that the proposed blast by Richfield Oil Corp. (L.A.) and others next winter (PW—Jan.30'59, p8) would be experimental. He said that if the test results warranted, other blasts would be scheduled to find the best method for producing tar-sand oil.

•

Venezuela's new president, Romulo Betancourt, will leave the nation's higher taxes on profits unchanged. That was a key point in his inaugural address. Earlier, in press statements, Betancourt emphasized that the government plans no immediate measures affecting the oil industry. He added: "There won't be any sudden decrees." The increased tax, which in effect guarantees the government a minimum 60% take of oil company profits, was imposed by a decree law by the preceding government.

Venezuela is not concerned with U.S. oil import restrictions, Dr. Juan Perez Alfonzo, the new oil minister, said, because he doesn't think Venezuelan production should be pushed too high. He is more concerned that import restrictions may create a "double" pricing system for U.S. and foreign oil.

•

The Texas Railroad Commission may be getting set to consider prorating secondary recovery production. Commissioner William J. Murray, Jr., says the commission plans a hearing "soon" to study the problems of prorating secondary recovery projects, now exempt from strict allocation. Total "exempt" production, which also includes stripper wells and new discoveries, now amounts to 1.1-million b/d, or nearly 35% of the state's calendar-day allowable.

•

The "spread" between average crude prices and average product prices was up 5¢ in January to 88¢ a bbl., according to the Independent Petroleum Assn. of America. Average U.S. crude price was $3.06 a bbl., and the average for the principal products was $3.94 a bbl. The 88¢-a-bbl. spread compares with 83¢ in December and a 77¢ average for 1958, IPAA reports.

•

Demand for casing, tubing, and line pipe has caused Lone Star Steel Co. to step up production to the highest level since September, 1957. Pipe shipments in the first quarter, the company said, will be 150% over the first quarter of last year. The increase is due both to buying to build inventories as a hedge against a possible strike, and to more pipeline construction.

•

Fred H. Moore will become executive vice-president and a director of Magnolia Petroleum Co. Mar. 1. Moore, general manager of the parent Socony Mobil Oil Co.'s producing department, previously was with Magnolia from 1935 to 1956. Henry L. Waszkowski will become vice-president for exploration and producing of the Mobil Oil division of Socony Mar. 1, the effective date of Socony's new organization plan (PW—Jan.16'59,p13).

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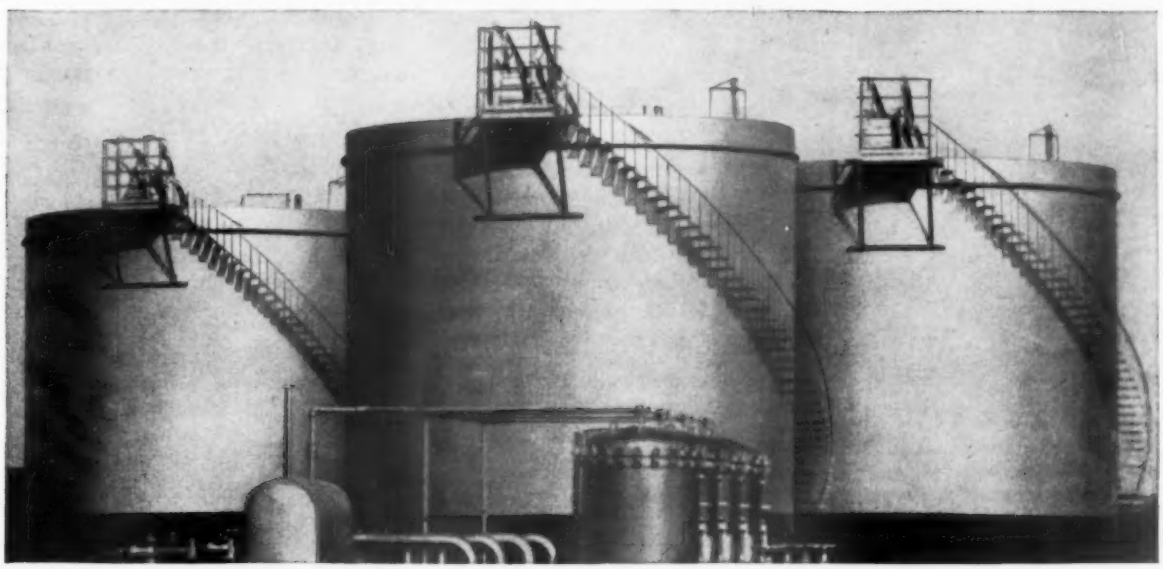

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Looking Ahead in Washington

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February 20, 1959

Congress won't approve a higher federal gasoline tax this year. That became apparent this week when Rep. Wilbur Mills (D., Ark.), chairman of the tax-writing House Ways & Means Committee, wrote off the gasoline plan of the Administration.

Mills has the backing of Speaker Sam Rayburn (D., Tex.), who doesn't like the idea either. Eisenhower wanted to increase the current gasoline tax of 3¢ to 4.5¢ per gal. Now he will have to look elsewhere for additional highway funds.

Democratic opposition to new taxes also affects the depletion fight. Mills doesn't intend to recommend any major tax changes—including the depletion provision—this year. The Senate Finance Committee's majority is against any depletion cut, too. The sole opportunity for the antidepletion bloc will be in a floor vote in the Senate, where Sen. William Proxmire (D., Wis.) will offer a depletion-reduction amendment to a tax bill. And Proxmire won't have much choice of a vehicle. Only a few tax measures will find their way to the Senate—mainly a corporate tax extension and an insurance bill. Even in the unlikely event that Proxmire should get a majority vote, the House would not support him. A large vote, however, might pave the way for action in 1960.

•

Watch for a change in the membership of the Atomic Energy Commission. Dr. Willard F. Libby, leading advocate of atomic use in oil production and other commercial areas, will quit his AEC job in the spring. The successor to Libby could swing the commission's thinking on "Operation Plowshare" either way—for a stronger program of commercial usage, or toward strict government control.

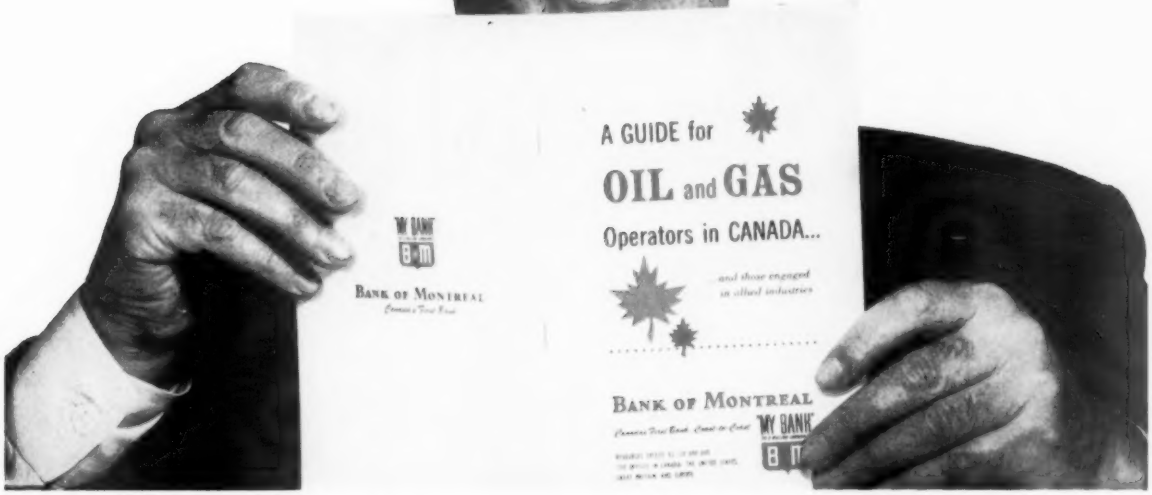
AEC is being blasted in Congress for its proposed nuclear explosion to free oil from shale. Rep. Daniel J. Flood (D., Pa.) called the plan "the scientific hoax of the century." He added: "The boys are playing with pretty expensive firecrackers when the chairman [John McCone] admits it will cost at least $3-million and probably will not produce any oil."

•

The Teamsters Union has hit a snag in its organization of service station employees. The National Labor Relations Board has refused a Teamster petition for an election by employees in a single station. The union wanted to organize one of the three Rutledge Oil Co. stations in metropolitan Kansas City. NLRB ruled that a single station did not constitute a proper bargaining unit.

•

The question of controls for residual fuel oil may cause some Administration in-fighting on an imports plan. Cabinet committee members are anxiously watching for the expected certifications by the Office of Civil & Defense Mobilization that imports threaten U.S. security. If OCDM, as in the past, refuses to certify residual fuel, some top officials may press the opposite view to the President. More likely, one side probably will back down, as happened when the Justice Dept. late last year threatened to file a separate recommendation to Eisenhower when the Cabinet committee was ready to ask a 50-50 voluntary plan splitting imports between new and established companies. The committee retreated at that time.



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A Big New Oil Play Is in the Making

The remote Beatton River-Milligan Creek area of northeastern British Columbia is showing all the signs of developing into a big new oil region.

Considering the fact that the initial discovery in the Milligan Creek area was made in the spring of 1956 by Union Oil Co. of California and Hudson's Bay Oil & Gas Co., Ltd., the development has been slow in coming.

The discovery was not completed until the following winter, however, when an additional development well and one dry hole were drilled.

The big play has come in the past three months or so, following Triad Oil Co.'s discovery at Beatton River, 5 mi. northwest of Milligan Creek.

The Union-Hudson's Bay discovery at Milligan Creek is in a 1-million-acre block, in which the companies hold substantial acreage. Imperial Oil Ltd. and Richfield Oil Corp. (L.A.) also own large sections in the huge block.

Drilling so far points to a possible link-up of Milligan Creek field and the newer Beatton River field.

The two fields have this much in common:

- Production from both fields is from the Triassic-D zone, at about 3,800 ft.
- The crude is essentially 40-gravity.

One test now under way—Triad's No. J-17—may help support the theory that the two fields are one—though officials say there hasn't been enough drilling to say, one way or the other, regardless of striking similarities between the fields. The J-17 test is 1½ mi. southeast of production in Beatton River field and 3½ mi. northwest of production at Milligan Creek field.

Milligan Creek now has five oil wells and Beatton River has three. Several tests are nearing completion.

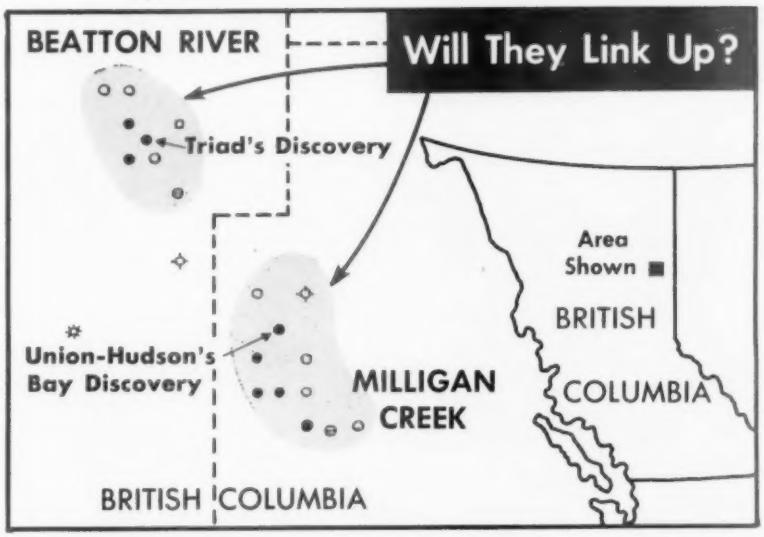
Though no production figures have been released for the Beatton River discovery, the rate has been reported unofficially at more than 500 b/d through chokes ranging from 11/64-in. to 14/64-in. during tests.

Triad has completed two offsets to its discovery—one ½ mi. northwest, and other ½ mi. southwest—in carrying out an exploration and continuous development program on wholly-owned acreage comprising about 200,000 acres in two permits.

Three rigs were in operation, at last report. A Triad official says the company will concentrate on the program until weather forces discontinuance for the duration of the muskeg season.

Triad also has completed another discovery—No. K-39-D—5 mi. west of the Beatton River discovery. This well produces from the Gething, a new pay. It's reported that the productive rate is comparable to that of the Beatton River discovery.

Further drilling will be necessary to determine the importance of the Gething pay discovery, and its possible relationship to the main Beatton River pool.



THESE NEW FIELDS have sprouted in the past few months, and touched off new plays.

BURNED TIMBER forms a dreary background for this rig on location at Milligan Creek.

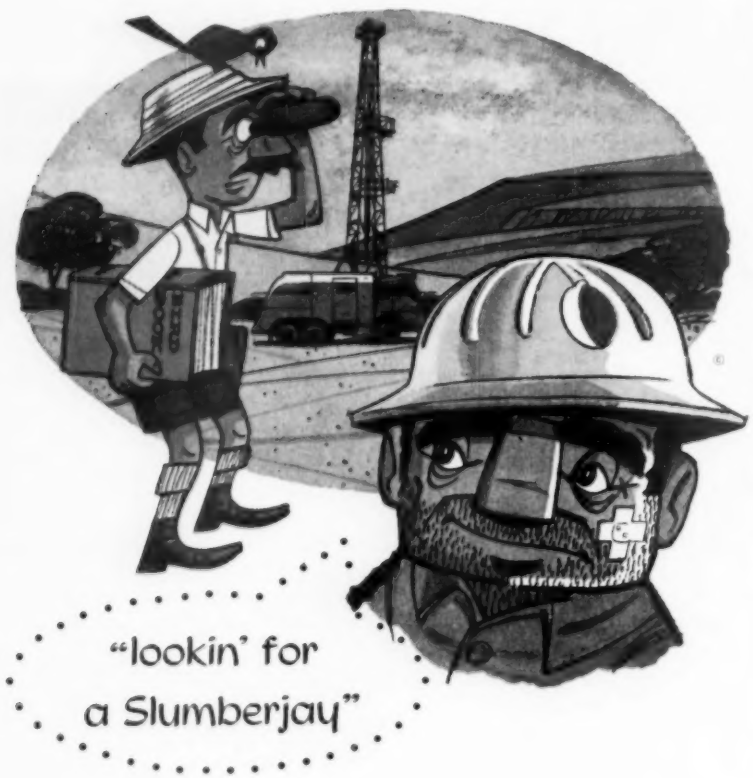
Union Oil officials have announced that each of the Milligan Creek wells flowed at the rate of about 300 b/d through small choke.

Wells completed so far by the Union-Hudson's Bay team (Union is operator) have been drilled on a ½-mi. spacing pattern.

Details on geology, field limits, and reserves in the Milligan Creek area remain sketchy.

Milligan Creek is about 55 mi. northwest of Boundary Lake oil field, and about 30 mi. northeast of nearest sizable gas production—at Buick

Congrats and $25 for this quip to Mrs. Merlyn Goodman, Rt. 5, Box 742, Shreveport, La.



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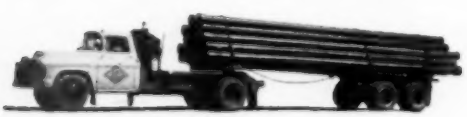

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Creek field—though gas is scattered throughout the area.

Neither Union nor Hudson's Bay officials will make any public estimate of the reserves proved up by the wells completed to date. But they have parted with the clue that probable reserves in the Milligan Creek area fall short of 25-million bbl.

The field has shown indications of being quite narrow, being limited, possibly, by one dry hole northeast of the discovery, and by the most southwesterly completion, which established a water line on that side of the field.

Thus, the width of the field, according to one official, might be roughly only one mile.

Size of the field proved up so far by drilling is estimated at 1,200 acres.

There have been no disclosures yet about porosity and thickness of pay at Milligan Creek.

Hopes are high that the new area may open a large new stretch of "oil country" for Western Canada. Additionally, there is the solid fact of growing activity by several companies.

According to a rough estimate given to PETROLEUM WEEK, close to 20 locations have been staked in Milligan Creek field and adjacent areas. This is some clue to the amount of drilling that might be conducted during "freeze-up" this year.

Phillips Petroleum Co., holder of major acreage in the area, plans to make two tests, and possibly four, in the vicinity.

Union Oil plans to keep one rig in the area on exploratory drilling, with three holes planned. One of these, a joint venture with Richfield, is already under way about 7½ mi. northeast of the Milligan Creek discovery. The other two will be drilled in partnership with Hudson's Bay; locations have not yet been determined. These tests are in addition to development of the field.

West Canadian Oil & Gas, Ltd., reports that arrangements have been completed with Phillips and Scurry-Rainbow Oil, Ltd., to drill three Triassic tests in the area.

Other major acreage-holders in the area include Sinclair Canada Oil Co. and Castle Oil & Gas, Ltd.

Land in the area was tightly held at the time of the Milligan Creek discovery, and still is. Chances of acquiring further land in the area, therefore, are virtually nonexistent.

Operating conditions are difficult, but these are outweighed by the attractions—low drilling costs, and shallow producing depths.

It's estimated that the average cost

for drilling and completing a Milligan Creek well is $65,000.

And, says an official, it takes only about two weeks' drilling time, because of fairly "soft" conditions.

The muskeg, as could be expected, is one of the toughest barriers to be overcome in the flat, desolate area.

Officials estimate that the depth of the muskeg is from 4 to 12 ft.

When it comes to conditions typical of the north country, the Milligan Creek area seems to lack only grizzly bears. An inured-to-it-all comment comes from a Hudson's Bay official: "There's nothing unusual—so far as the north country goes. Muskeg, cold, isolation—and the bulldozing of trails through the bush. There are no unusual pipeline problems, either—for the north country."

Except for a few deeply incised streams, the country is very flat. There is scrub timber and burned-over areas. It appears that considerable growth, once there, has been burned—probably by lightning.

Some crude has already been started to market—by truck.

The crude is being trucked to the 2,500 b/d refinery of North Star Oil, Ltd., at Grande Prairie, Alta., about 150 mi. southeast. But the amount being trucked, say officials, depends on road and trucking conditions. It's estimated, roughly, that an average of about 300 b/d is going to Grande Prairie from Milligan Creek field.

Feasibility of pipeline outlets for the area are under consideration. But no definite plans have been made.

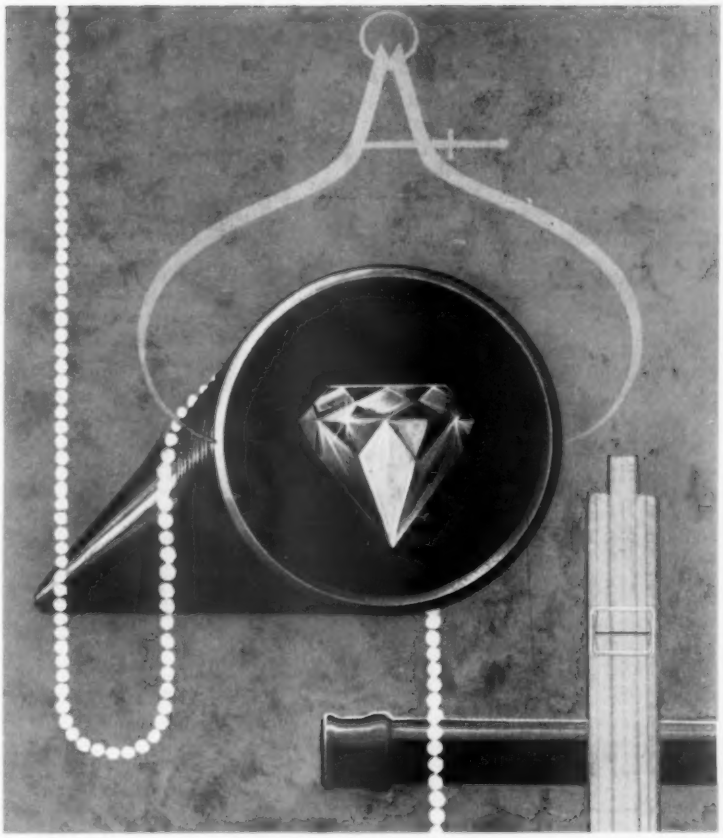
There is some reluctance on the part of company officials even to conjecture at this time about a possible future pipeline. But even if it is determined that there is enough production to support a pipeline, there is still the question of markets to be considered in making final determinations as to economic feasibility of new pipeline construction.

There appear to be two possibilities in the matter of pipeline outlets.

First, a combination of reserves from Milligan Creek and nearby oil-producing areas—such as Boundary Lake and Blueberry—might support a pipeline from northeastern British Columbia, if routed to connect with existing facilities from the general Peace River region.

Second, construction of an all-new line from northeastern British Columbia across the province to Vancouver or vicinity might appear justifiable in time if large reserves are established.

A minimum throughput of around 75,000 b/d would be necessary to support a big-inch line of this nature,



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according to some estimates. Reserves sufficient to meet that requirement are not in sight.

Although a pipeline still appears to be in the indefinite "some day" stage, one company has already made application to build one.

The application was made by Act Oils, Ltd., a subsidiary of Canada Southern Petroleum, Ltd. A Canada Southern spokesman told PETROLEUM WEEK that the line cannot become a reality until adequate reserves are known to exist, and until these reserves are related to markets.

The Act Oils application follows recommendations made by British Columbia Premier W. A. C. Bennett in 1956. At that time, Bennett said:

"As British Columbia's oil resources grow—and we are optimistic that they will grow at a very rapid rate—we would like to visualize another oil pipeline (aside from Trans-Mountain) through the province.

"This line would take British Columbia's oil, together with oil that will be found still farther north, and bring it through British Columbia, paralleling the present gas line [Westcoast Transmission]. At its lower end it could link with the Trans-Mountain oil line and move on down to tidewater."

Flocculent May Aid Air Drilling

An organic polymer flocculent—which found its first use in low-solids drilling—will soon be used experimentally in air drilling.

"Polydril," made by Dowell Division of Dow Chemical Co., will be used in an effort to overcome the problem of watery weeping sections that cut down penetration rates in air drilling. The water-soluble material will probably be tested for this purpose in West Texas, possibly in the next few months.

The agent acts on the cuttings as an anti-balling agent only.

Encroachment of water in the hole from weeping sections of rock hampers air drilling because cuttings tend to ball up around the bit, interfering with the circulation of the air stream.

Because of its properties, Polydril may reduce this balling problem, says Dowell, permitting continued air drilling without mudding up to penetrate such zones.

Polydril itself, however, does nothing to shut off the water, the company stresses. Foaming agents, presumably, could still be used in conjunction with Polydril—the first to lift the water, the second to prevent balling.

The agent already is being used successfully in the field to remove solids from the fluid in clear-water drilling (PW—Jul.5'58,p19).

The material, which is introduced into the fluid stream in slurry form, helps settle out formation solids.

Approximately a pint of Polydril is mixed with an equal volume of diesel oil or kerosine. This mixture then is poured slowly and uniformly into a stream of fresh water or brine going into a 50-gal. chemical mixing drum.

This makes 50 gal. of treating solution, which is injected into the drilling fluid stream at the rate of 50 gal. each one or two hours for the first four hours. After that, the rate of injection is 50 gal. each three or four hours.

So far, Polydril has been used on several hundred jobs, largely in North Central and West Texas, and also in Kansas, Oklahoma, the Four Corners Area, the Rockies, and Canada.

The company says contractors report getting up to 50% faster drilling and up to 25% longer bit life by using the agent.

The flocculent, under development for some time, is now being made available in powder form.

Dowell has modified the original polymer to make it easier to handle in the field and, particularly, to produce it in a form that would permit it to go into solution more easily.

New surfactants have made possible the marketing of Polydril in powder, rather than paste, form. As a powder, the agent is packaged in 5-gal., 34-lb. reusable cans.

The powder form brings up another possibility—that of introducing Polydril into the air stream in powder, rather than liquid, form. Dowell says both methods will be tested.

Polydril also is being used in "well washing" treatments, both in new and old wells.

In this type of application, 2 to 3 bbl. of Polydril in solution is dumped into the well, agitated briefly, and then bailed out.

The process, Dowell says, results in a cleaner well, helping to increase production.

The company says Polydril also has been used this way in injection wells, reducing the injection pressure required.

Because of Polydril's unusual characteristics, Dowell believes there may be additional uses for the agent. It is now working experimentally on some of these possibilities.

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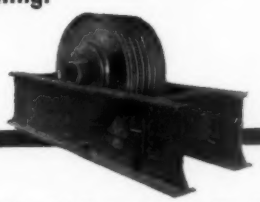

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Continental-Emsco crown blocks are available to match the larger sizes of traveling blocks. Sheaves and bearings are interchangeable with these traveling blocks and ratings are according to API specifications.

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Deep Pay Spurs Borden-Garza Drilling

An oil play straddling the line between Borden and Garza Counties has blossomed into one of the top drilling spots in West Texas.

Although the two counties have a long history of production, the new play overlaps into parts of both that previously had been relatively inactive.

Last year, 24 discoveries were made in this area. And another was added last month.

The play runs generally in a north-south direction, extending from 5 mi. south of Post, in Garza County, to 5 mi. north of Gail, in Borden County (map).

New discoveries keep extending the area in all directions.

Because the area is still largely undeveloped, and wildcat interest is high, continued strong drilling activity is predicted.

"The area is far from being defined," says one geologist. "Undoubtedly there will be more discoveries made this year, and there certainly is lots of field development ahead."

Some 20 to 30 rigs are working constantly in the area—either in development work or on wildcat projects.

At last report, the Borden side of the play had 15 active rigs, five of which were on wildcat locations. The Garza side had 12 rigs working, six of them in wildcat drilling.

The new activity contributed largely to the fact that Garza County led West Texas in discoveries last year.

Garza racked up 18 discoveries last year on a countywide basis, 13 of which are in the play. Of these, three were dual completions.

And nearly all of the Borden County discoveries last year were made in the play.

Of the 12 discoveries recorded, 11 were in the new area. Two of these were dual completions.

The uncovering of deep producing horizons is the basis—and the lure—of the drilling campaign.

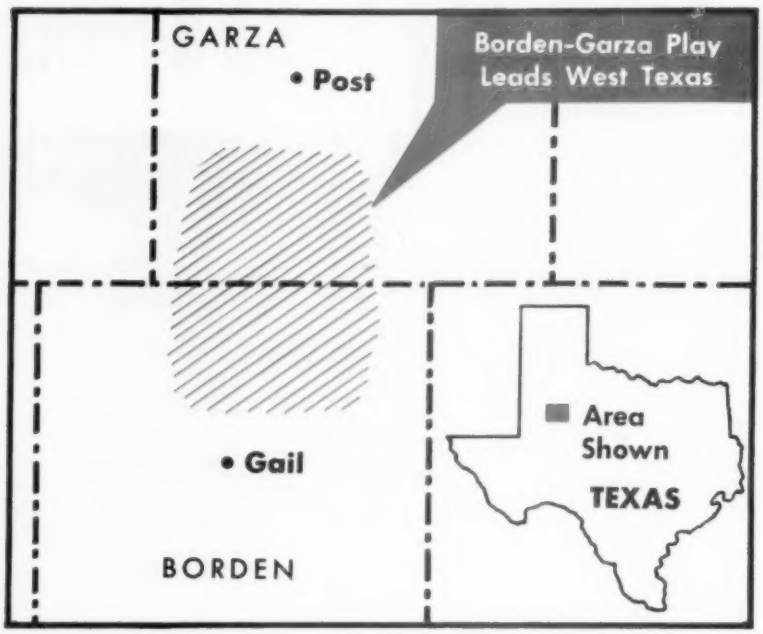
Pennsylvanian production was found 12 times in the area last year—six times in each county.

Ellenburger production was found five times in Garza, and six times in Borden.

The one shallow find in the area last year was a Clear Fork (Permian) discovery at 3,230 ft. in Garza.

In Garza, last year's discovery depths ranged from around 7,800 ft. to about 8,500 ft.

In Borden, the pay depth ranged from around 8,000 ft. to about 8,700 ft., except in the case of a deeper Ellenburger pay at 9,048-64 ft.



The largest potential among the new discoveries was Shell Oil Co.'s No. 1-C Slaughter, completed for 607 b/d from the Pennsylvanian, and for 342 b/d from the Ellenburger.

The smallest producer was Shell's No. 1-F Slaughter, completed for 14 b/d of oil and 37 b/d of water from the Strawn.

Both large and small operators are participating in the play.

Those active in the area include: Shell, Sinclair, Skelly, Kerr-McGee, General American of Texas, American Petrofina, R. S. Anderson, Humble, W. A. and E. R. Hudson, W. A. Moncrief, and Ashmun & Hilliard.

Shell, however, is the most active in the area, and completed eight discoveries last year.

Shell Pipe Line Corp. has recently completed gathering and transport facilities to provide an outlet for production in the area. It built a 43-mi. trunk line, and some 20 mi. of gathering lines.

The system is designed for an ultimate capacity of 32,000 b/d. Presently, the line can handle about 12,000 b/d, and was moving around 6,000 b/d when it went into operation recently.

A pump station and storage facilities have been installed at the northwest terminus of the trunk line, in Garza County, and the gathering system connects nine tank batteries in the newly-developed fields.

The trunk line delivers oil to the Basin Pipe Line System at Colorado City, in neighboring Mitchell County, southwest of Borden County.

The Paul Teas No. 1-A Slaughter on the U Lazy S Ranch, Garza County, completed in January, 1957, is generally credited with quickening the play in the area.

The Teas well, section 31, block 1, Jasper Hays survey, flowed 226 b/d from the Pennsylvanian at 8,346 ft.

Interest in this area had been growing for some time, as evidenced by Shell's leasing of 640 acres in 1956, with a 120-day exploratory option on an additional 45,000 acres.

Shell drilled one dry hole on the land in 1956, which encountered some oil shows.

This encouragement, plus the Teas well located nearby, helped influence Shell to try again, resulting in completion of No. 1-B Slaughter, section 16, block 30, T-6-N, T&P survey, Borden County, in October, 1957.

In the meantime, Sinclair had completed its No. 1 Koonsman, section 27, block 2, T&NO survey, also in Borden, in June, 1957, for 89 b/d plus 20% water on the pump. Production is from the Spraberry at 5,230 ft.

When Shell dually completed its No. 1-C Slaughter, section 33, block 2, T&NO survey, in January, 1958, the drilling play picked up speed, accounting for last year's activity.

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Mexia-Talco Fault Lures New Pay Hunt

Exploration along the "back side" of the northeast Texas portion of the Mexia-Talco fault system looms as a key activity for the area in coming months. Two recent discoveries in Titus County are the sparks.

The discoveries, one in late December and the other last month, are both outside the 23-year-old Talco Paluxy (lower Cretaceous) field, which spreads east-west along the well-defined fault.

Significantly, both discoveries are in producing formations virgin to the immediate area. One is from the Woodbine (lower Cretaceous) sand above the Paluxy, and the other produces from the Glenrose section, just below the Paluxy.

The Woodbine and Glenrose discoveries have the added significance of being on the downthrow side of the fault system, and are conceded to be producing from a graben, or fault-block, type structure.

Geologically, the two new traps are between the Talco fault on the south and the Sulphur River fault on the north.

While similar structural production is not unknown in East Texas, it is sufficiently unusual to give such successes added interest as exploratory possibilities.

Fault blocks are mainly associated with salt dome structures, and some geologists now theorize that the northeast Texas blocks may have some relation to deep-seated salt structures.

First of the Titus discoveries is R. E. Moore and W. M. Coats No. 2 Hoffman, which opened Trix-Liz Woodbine pool.

This discovery is about 1 mi. north of Paluxy production in Talco field. It was completed for 176 b/d of 22.4-gravity oil on pump through perforations at 3,664-90 ft.

With this completion, Woodbine production was extended to its most northerly point in the east Texas Basin.

The second discovery came a few weeks ago, when American Petrofina Co. of Texas and Humble Oil & Refining Co. completed No. 1 Lilienstern-Hoffman in the upper Glenrose.

The Petrofina-Humble operation pumped 135 b/d of 39-gravity oil through perforations at 5,459-64 ft. It also is about 1 mi. north of Talco field, and is 2 mi. west of the Moore-Coats discovery.

This well also found the Woodbine section from which the Moore-Coats hole produces, but no attempt was made to test that zone.

Petrofina and Humble, however, now are drilling a west offset to their discovery, and it will be used to evaluate the Woodbine.

The Moore-Coats partnership also is active on an 1,100-ft. west confirmation to its discovery, with the new Glenrose pay as an evaluation target.

Significance of the Glenrose discovery is that nearest comparable production—also new—is about 70 mi. southeast, in the Harrison County portion of the big Bethany field.

Glenrose possibilities are not unknown for this general area, however. Back in 1953, the former Seaboard Oil Co. established the short-lived Southeast Cuthand Glenrose pool in Red River County, about 10 mi. northeast of Talco.

Production from this pool, which totaled only 12,000 bbl. before abandonment, was from the lower

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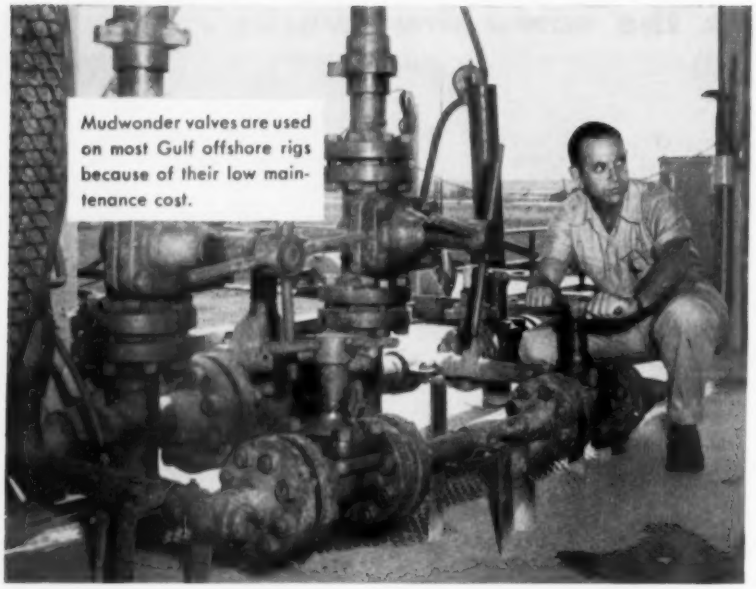

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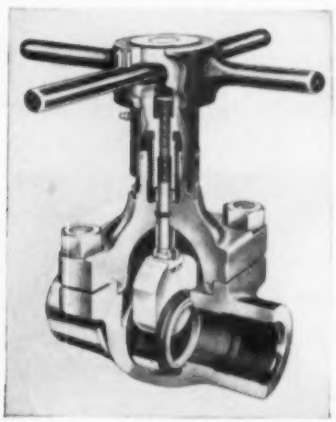

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Glenrose section. There is no geological link between the Cuthand area and the new Talco discovery.

Operators in the various fields along the upper end of the Mexia-Talco system are now taking a closer look at "outside" drilling in other established fields paralleling the main fault break—a major geologic feature in this portion of Texas.

There has been a little new leasing activity along the outside of the general fault system following the two recent discoveries, but it's been limited by the fact that most acreage has long been under lease.

The current interest is in the string of fault-line pools extending east from the old, abandoned Campbell, in Hunt County, where the system makes its bend eastward from its northerly trend up from Mexia.

Other fields covered in the play include Sulphur Bluff and Mitchell Creek, in Hopkins County; Lakeview, Sugar Hill, and Pewitt Ranch, in Titus County; and Dalby Springs, in Bowie County, eastern limit of the pool line. All of these are Paluxy areas.

There is little present activity south of Campbell, along the fault system toward Mexia.

There are two spots along the lower section of the fault where production has been established on the downthrow side, under structural conditions similar to that at Talco.

First of these came in 1953, when Cities Service Oil Co. opened West Wortham Woodbine pool, 2 mi. southwest of Wortham townsite, Limestone County. It was outside the old Wortham Woodbine pool, and was completed as a gas well for 13-million cf/d plus 3.14 bbl. of condensate per million through perforations at 4,217-36 ft.

The discovery created considerable geological interest at the time. But, after further testing in the area failed to yield confirmation, interest faded.

Limited Woodbine oil production was established a short time later farther up and on the back side of the fault system, in the Ham Gossett area, Kaufman County.

Ham Gossett is a highly broken area, with multiple pay zones. It is considered to present a potential pattern for what may develop at other points northeast, along the main fault system.

One of the Ham Gossett pays is the Glenrose, and some geologists already believe a similarity exists between the prolific Ham Gossett area and the new Talco discoveries. This belief is backed up by the multiple zones indicated as possibly productive in the Titus County exploration.

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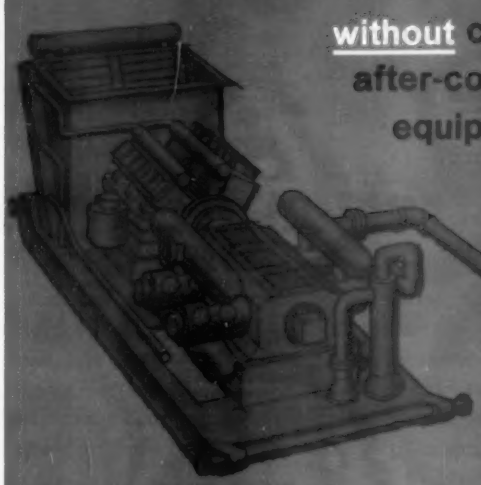

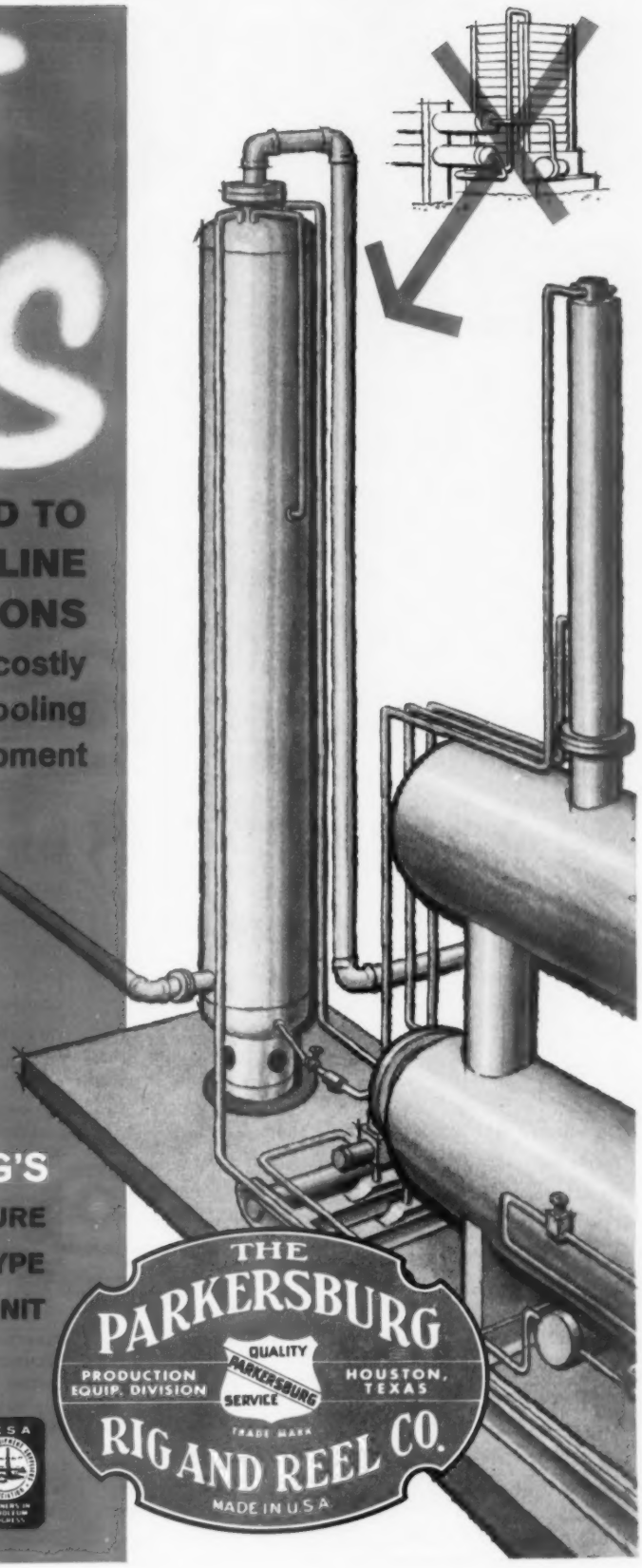

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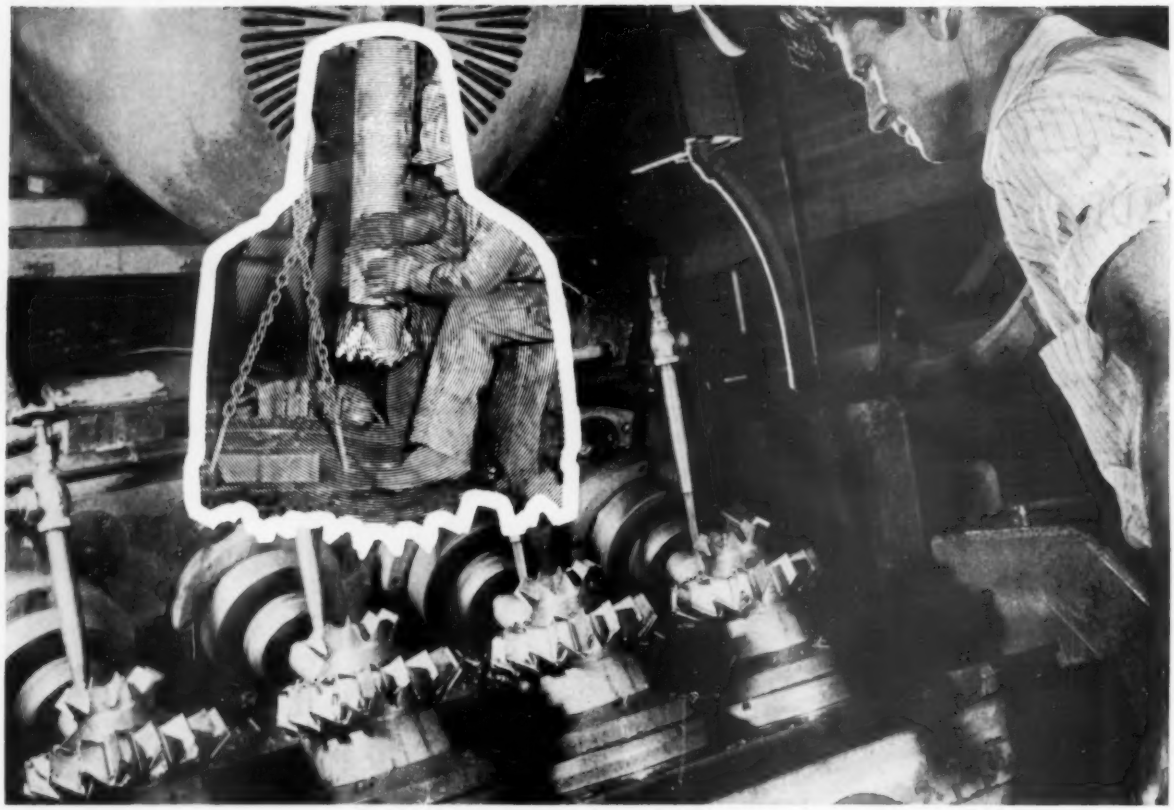

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Arctic Operators Face Unique Problem

Oil men planning to drill in the Arctic wastes of Alaska have a special problem to overcome: permafrost.

Permafrost is ground that never thaws. In Alaska, it is found primarily north of the Alaska range. Without artificial heat, only the top foot or so will thaw, even in the summer season. The permafrost layer ranges in thickness from 800 to 1,150 ft.

This condition entails extra precautions by operators drilling in the area. Some of these precautions have been spelled out by Gene Davis, now of Monterey Oil Co., but a veteran of development at Naval Petroleum Reserve No. 4 in extreme northern Alaska.

Permafrost forces the operator to take steps to prevent the ground under the rig base from thawing, says Davis.

Large rigs for deep drilling, he says, must be set on pilings or refrigerated sills, and the ground surface under the rigs protected as much as possible from any heat.

Davis says that deep tests drilled in NPR-4 were ringed with thermister wells to detect warming up of the frozen sediments. Also, he says, refrigeration pipes were set near the piling, or under the sills supporting the derrick.

Another useful device, says Davis, is the double-wall conductor pipe, with a dead air space between pipes to prevent heat from the drilling mud from being transmitted to the surrounding formation.

Mud and cement also must be specially handled, Davis adds.

Conductor and surface pipes were cemented from shoe to surface with fast setting cement, he says, and the mixing water for all jobs was heated to about 150F.

The extreme cold necessitates filling the annular spaces between the tubing and casing, and the casing and the hole, with cement or oil.

Experience showed that the freezing of mud or water in these annular spaces always collapsed the casing and pipe when the water or mud was not replaced by cement or oil, Davis says.

Actual production of oil and gas in the Arctic region poses further difficulties.

Gas normally contains water vapor, which condenses and freezes in the tubing and annular spaces. Because of this, says Davis, wells must be treated with solvents, and must be periodically blown out.

Oil produced through the permafrost accumulates ice in the tubing and quickly plugs it.

Production from such wells can be obtained, however, says Davis, since tests have proved a method for heating the tubing electrically to keep ice from forming.

One test used a 200 b/d well at Umiat with a water cut of about 5%. The terminals of a welding machine were connected to the tubing at the top and at the bottom. By doing this, the temperature of the fluid at the well head was raised from 21F to 32F.

Pipeline transport of oil will present similar problems, says Davis.

Gas will need to be completely dehydrated, and any oil to be shipped will have to be clean and have a satisfactory pour point.

Another obstacle in the Arctic is a psychological one.

Davis says that in attempting to hire men to work in the Arctic, he found a surprising number who were afraid, and others who dreaded being cold.

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What's New / IN EXPLORATION, DRILLING, PRODUCTION

How to Combat Well-Plugging Hydrates

Three ways to combat ice-like, well-plugging crystals that plague natural gas producers are suggested by John M. Campbell, chairman of the University of Oklahoma's petroleum engineering school.

Campbell, who has just completed a year-long study of the formation of the crystals—hydrates—in high-pressure wells recommends:

- Use of chemical hydrate inhibitors, or "antifreeze" compounds.
- Use of bottom-hole heaters to keep temperatures high.
- Use of bottom-hole chokes above 5,000 psi. gauge.

Natural gas, Campbell explains, has the ability to form hydrates at temperatures in the range of 60F to 100F when the pressure is high enough. The hydrates plug the wells.

The hydrate study was financed by Sunray Mid-Continent Oil Co., which, along with other producers, has been having trouble with some of its 10,000-ft. to 15,000-ft. gas wells in Louisiana.

•

A 16-test exploration program aimed at development of deeper gas reserves in the shallow Guymon-Hugoton field of southwestern Kansas and the Oklahoma Panhandle has been launched by Jake L. Hamon and Peerless Oil & Gas Co.

Hamon and Peerless have obtained rights below 3,000 ft. on more than 100,000 acres in Texas County, Okla., and Seward County, Kan., from Westhoma Oil Co.

The agreement calls for a continuous work program. Ten of the 16 tests are planned for this year. One hole will be drilled on each 6,400-acre unit in the spread. All will be drilled to an average depth of 7,000 ft. to test the Morrow (Pennsylvanian) and Chester (Mississippian) zones.

The first of the tests is now under way, 1 mi. south of Hooker, Okla., and some 3 mi. northwest of the recently opened Cambrick Morrow gas pool.

•

Operators fighting the subsidence problem in California's Wilmington field have been given the go-ahead to increase water-injection facilities.

The Long Beach Board of Harbor Commissioners has approved the expansion in the vicinity of Long Beach Naval Shipyard (PW—Jan.16'59,p23).

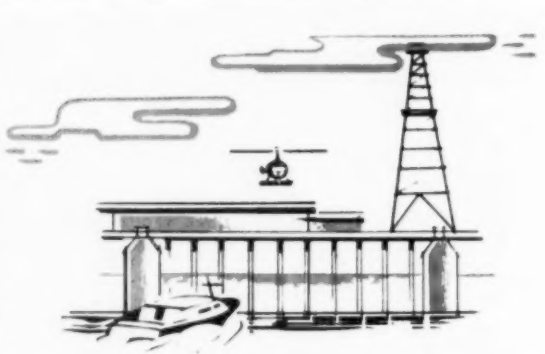
Plans call for doubling the present 50,000 b/d capacity of the injection plant on Pier E, with the 2,000-lb. injection pressure to be maintained.

In addition, a new plant will be constructed west of Gate 5 at the shipyard, with a capacity of 50,000 b/d.

Plans and specifications for the plants are being prepared, with construction scheduled to start as soon as possible.

When completed, the new plants will service additional injection wells on blocks II, III, and IV on Terminal Island.

In a related development, Wilming-



PREVENTION LOSS

LOSS PREVENTION SERVICE

The industry's finest, built into offshore oil insurance

Southern Marine's experienced loss prevention engineers constantly work with assureds and their employees to eliminate possible losses and resultant down-time of equipment. But should a loss occur, these technicians work just as diligently to quickly put your equipment back to work, earning income for you. Ask those who have used our Loss Prevention service how well it works.

Southern Marine's superior service, facilities and capacity cost no more — there is no charge for loss prevention service. Have your insurance representative talk with us before placing your offshore oil insurance.

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610 Poydras Street, TUlane 5266, New Orleans 12

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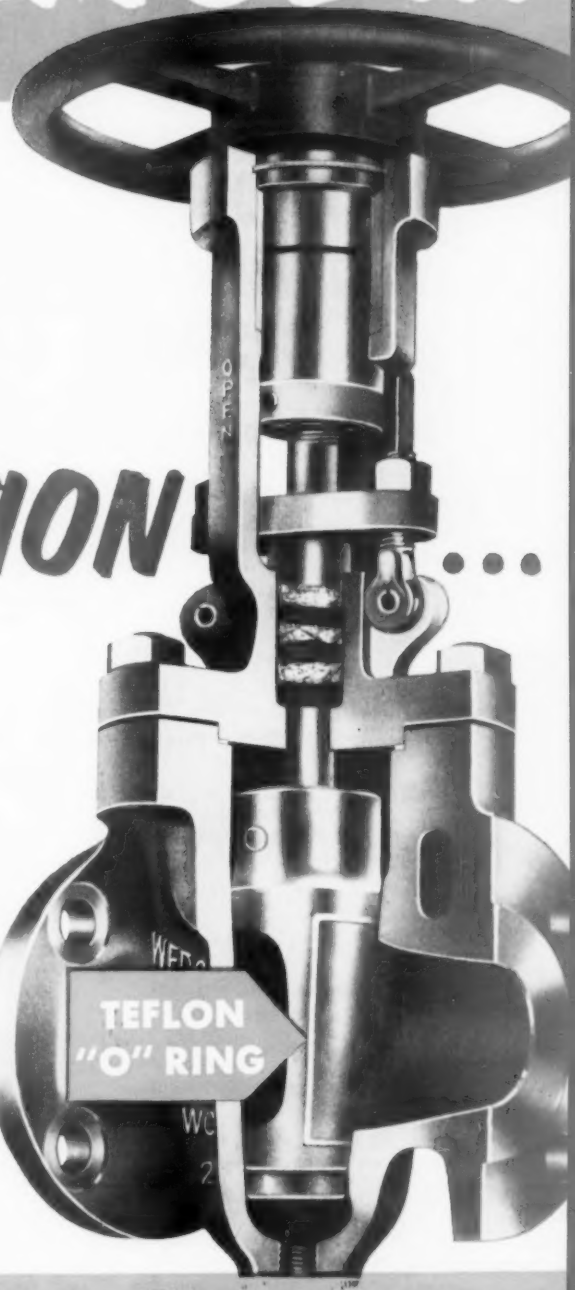
NO LEAKAGE...

You're looking at the newest thing in valves . . .

STOCKHAM'S NEW WEDGEPLUG* "O-SEAL" VALVE

Two Teflon** "O" rings in the plug give constant vapor-tight shut-off . . . to give you double assurance of double savings on operating and maintenance costs.



NO LUBRICATION...

HOW TEFLON "O" RINGS WORK The two Teflon "O" rings are inserted in dovetail grooves machined on the face of the plug. These "O" rings seat on the raised body seats when the plug is in closed position.

CONSTANT VAPOR-TIGHT SHUT-OFF This sealing effect of the "O" rings gives absolute shut-off in all cases—shut-off that remains permanently "bubble tight." The Teflon "O" rings are chemically inert, practically frictionless, and will not cold flow.

TESTS PROVE POSITIVE SHUT-OFF Hundreds of tests of this new valve in all types of services have failed to make it leak. Performance has been remarkable. In every case, the valve held "bubble tight" because of the pressure seal effect of the "O" rings.

OTHER OUTSTANDING ADVANTAGES

Non-Lubricated—no costly maintenance necessary • Provides Double-Block and Bleed in most services • Quick, Easy Operation—won't stick or bind • Double Seating for Double Safety—Ground metal-to-metal seat provides shut-off in case fire burns out "O" rings • No Product Contamination • Protected Seats

RECOMMENDED USAGES Stockham's new "O-Seal" is recommended for all general purposes—air, gas, water, steam, propane, hydrocarbons, etc., as well as for hard-to-hold services. Recommended for temperatures from minus 300 F to 400 F and not exceeding 720 psi.

Available in carbon and alloy steels, 2" - 12" sizes, 150 and 300 lb. pressures. Three port openings—40%, 70%, full round-wrench, handwheel, gear, and motor operated.

*Patented
**Teflon DuPont Trademark

STOCKHAM'S NEW WEDGEPLUG "O-SEAL" VALVE

Call Your STOCKHAM Distributor or Sales Representative for complete details, or write today for the new brochure on the Wedgeplug "O-Seal."

Stockham makes a **BETTER** *valve...for* **EVERY** *job!*

STOCKHAM VALVES *and* **FITTINGS**

WEDGEPLUG VALVE COMPANY Division of →

General Offices and Plant— North 10th Avenue, Birmingham 2, Alabama

CAST IRON-MALLEABLE PIPE FITTINGS • BRONZE, CAST IRON, DUCTILE IRON, CAST AND FORGED STEEL VALVES

HOW OLD HOLE WAS DEEPENED OVER 1000' THROUGH 5½" CASING

with V-Door bits PATENT APPLIED FOR

HYCALOG

CONTINUING RESEARCH FOR LOWER COST DRILLING

Drilling through small diameter casing in a recent Mississippi deepening program demonstrated further the economy of using HYCALOG V-DOOR diamond bits.

In the run from the old total depth of 10,109' to the new completion depth of 11,200' only three 4 11/16" bits were required. The first, going in the hole on Nov. 23 made 385 feet through shale in 93 hours, averaging 4.4 feet per hour. The second, gnawing its way through 513 feet of shale, anhydrite and sand, averaged 3.6 feet per hour. The third completed the well on Dec. 7 after making 193 feet at an average of 4.8 feet per hour in hard sand and shale in the Rodessa formation.

The three diamond bits replaced many times that number of conventional bits, *yet cost no more* . . . the number of trips was reduced proportionately, . . . rate of penetration was exceptionally good . . . and, in spite of the small diameter at that depth, it was a clean operation without any down time.

This is just one of a number of such records set by HYCALOG V-DOOR *bits. Why not let* V-DOORS *set a record on your next drilling program?*

Hycalog, Inc.

505 AERO DRIVE
SHREVEPORT, LOUISIANA

BRANCH OFFICES IN PRINCIPAL OIL PRODUCING AREAS

DIAMOND CORING • DIAMOND BITS • WELL LOGGING • CORE ANALYSIS

ton operators were commended for their cooperation in fighting the subsidence by Joseph Bishop, president of the Board of Commissioners.

Bishop cited a report showing how 101 operators, accounting for 97% of the field's production, had released personnel and data (some of it confidential) to aid in the subsidence fight.

The remaining 3% of production from the field is held by some 30 working-interest owners who have not released any information in answer to the citys' plea for well data to help the engineering studies being made on each fault block in the field.

•

A total of 22,681 acres of Colorado state land was leased at the recent regular monthly sale. Total bonus was $47,802.

Of the 161 tracts offered, 99 were leased.

High bid of the sale—$25.63 per acre for a 160-acre tract in Logan County—was submitted by T. G. Dorough, of Denver. Dorough also submitted the second- and third-highest bids of the sale, also on acreage in Logan County, within the Denver-Julesburg Basin.

Twenty-seven of the tracts leased are in Saguache County within the San Luis Valley.

•

Texaco Canada Ltd. has added 3-million acres to its lease holdings in Canada's Northwest Territories.

This latest acquisition brings Texaco's total holdings in the Northwest Territories and the Yukon to about 7-million acres.

A Texaco spokesman says an exploratory program on the new holdings is now being planned.

The land was acquired from the Canadian government. Cost was not disclosed.

•

Engineering

A compact, skid-mounted positive meter tank custody transfer system for small leases or individual wells has been developed by Murdock Tank & Mfg. Co.

The unit is approximately 6½ ft. high, with the control panel rack mounted. It requires only field hookup to be put into operation, says Murdock.

Its measuring capacity ranges from 3 b/d to 500 b/d. The unit has a 3-bbl. positive meter tank, with a 10-bbl. receiving tank for pipeline delivery. It can be used with a surge

Seeing is believing . . .

CARBONOX*

Another Baroid Original

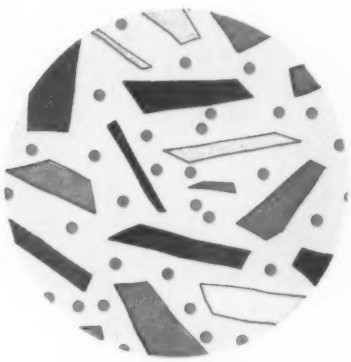
controls *drilling mud* **flow properties**

CARBONOX,
organic mud thinner,
used for more than 10
years in all areas at
all depths—

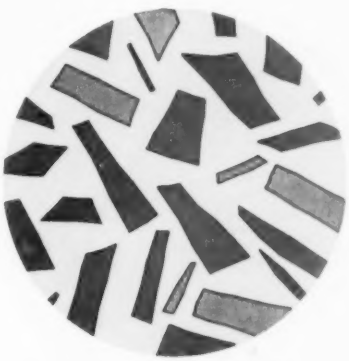
Economical
Simple to use
Reliable in results

If you are not using
CARBONOX *try it*
and find out why it
has won approval
for utility, efficiency
and economy.

CARBONOX
—another example of
Baroid experience
and know-how!

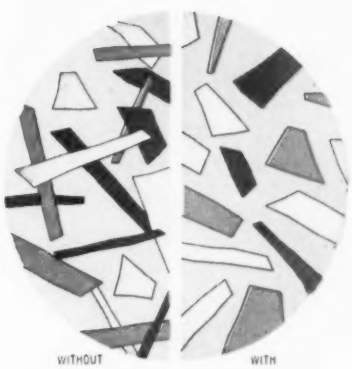


MAINTAINS GOOD EMULSIONS

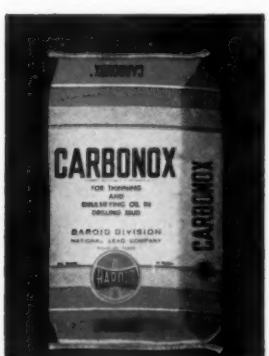


THINS MUD WITHOUT DILUTION

KEEPS MUD STABLE AT HIGH TEMPERATURE



RESISTS EFFECTS OF SALT WATER



BAROID

BAROID DIVISION NATIONAL LEAD COMPANY
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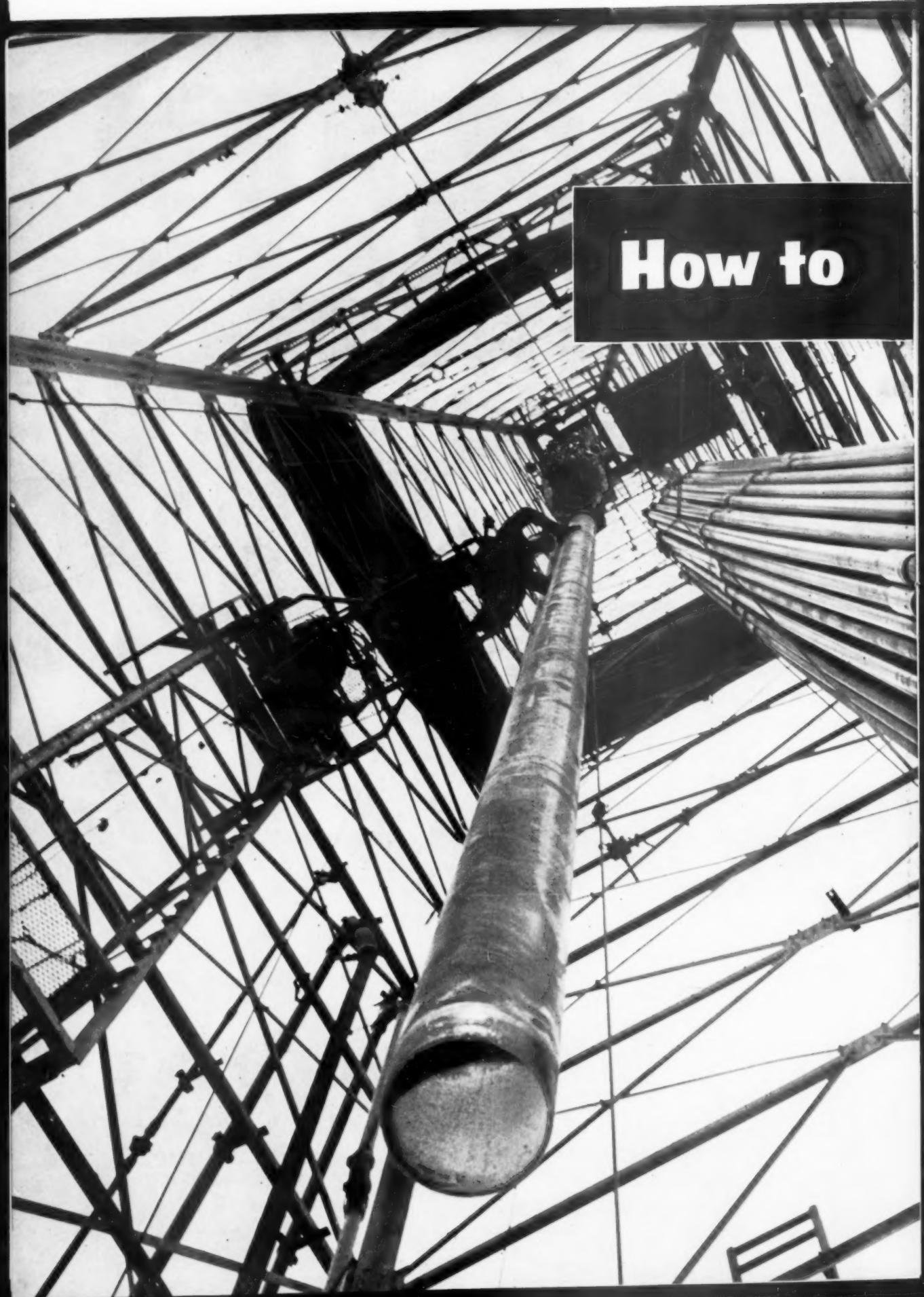
B 5011


How to

Buttress Long Strings

J&L Buttress Thread Casing has marked advantages in deep wells.

The couplings are longer. Pipe and couplings have longer, stronger threads. All threads engage fully . . . there are no vanishing threads as in conventional joints. These threads, five to the inch, Acme type, are angled to take tensional loads in sheer.

Inside clearance is not reduced (no internal upset). The pipe stabs easily and spins rapidly which means fast running time.

Buttress describes the product as well as the thread. The exceptional quality inherent in all J&L tubular goods is present in **J&L Buttress Thread Casing.**

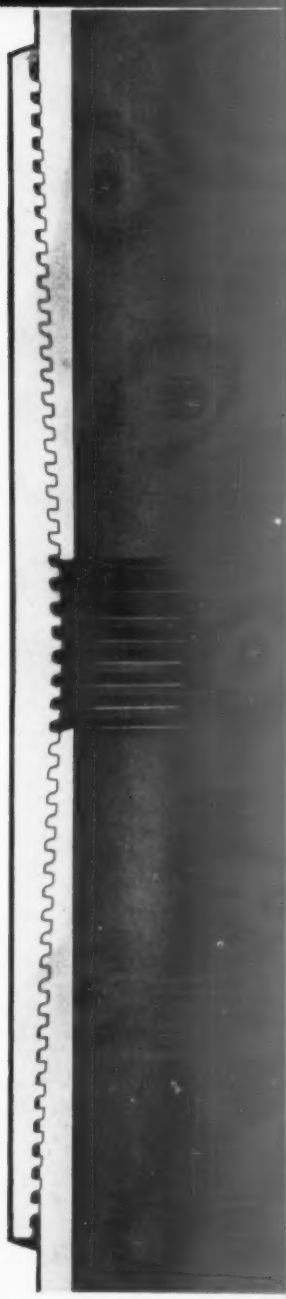
Quality control in the steel making and finishing processes is precise, exacting and continuous. Nothing is taken for granted. The highest-capacity in-line hydrostatic pressure tester in the world (up to 20,000 lbs. per square inch) checks **J&L Buttress Thread Casing.**

You can truly "Buttress" your long strings — and your production — with J&L casing.

Jones & Laughlin

SUPPLY DIVISION – Tulsa

If it's sold by J&L . . . .
It's the best available



Buttress Thread Joint

Norris Suggests —

Keep Straight Rods Straight

...to Reduce Your Pumping Costs

Helpful Hints

- Packaged rods should be handled only with suitable equipment. Adequate grapple-lines prevent sagging and bending. Rods are packaged for protection and convenience, an advantage to be used, not abused.
- Rods should be transferred singly. Do not throw, flip or whip. Wherever possible they should be evenly supported end to end.
- Lay down rods in singles only (never doubles). Use proper skids or blocks.
- Do not walk on rod stack during loading or unloading.
- Do not drive over rods.

Norris gives you the right rod — give it the right care!

NORRIS QUALITY
SUCKER RODS
POLISHED RODS - COUPLINGS

W. C. NORRIS, MANUFACTURER
DIVISION OF DOVER CORPORATION
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BRANCHES: Great Bend, Kansas; Corpus Christi, Houston, Kilgore, Odessa, Wichita Falls, Texas; Oklahoma City, Oklahoma; Salem, Illinois; Casper, Wyoming; Farmington, New Mexico.

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MAY 14-23, NEAR MAIN ENTRANCE

tank and emulsion treater, or with a Murdock emulsion-treater and surge compartment combined.

All auxiliary connections are provided for the use of lease valve, automatic sampler, flood lighting, and well controls.

It is equipped with the same instrumentation, monitor, and controls as the larger systems for large leases.

•

Electrical and mechanical characteristics of logging and perforating cables are being determined in a unique laboratory operated by Schlumberger Well Surveying Corp.

The cable testing laboratory was designed to study stretch, strength, and deterioration characteristics of cables under simulated well conditions.

Principal feature of the laboratory is the "extension bench." This equipment can test a 25-ft. length of cable under maximum tension of 20,000 lb., measuring elongation to within one thousandth of 1%.

The test length of cable is enclosed in an electrically-heated chamber capable of raising the cable temperature above 400F.

A unique feature of the extension bench is the freedom of the cable to rotate under any tension, thus allowing duplication of conditions in surveying welps.

•

A pneumatic truck for bulk delivery of mud to the drilling site has been introduced by Baroid Division of National Lead Co.

According to Baroid, some of the advantages offered by the truck are: (1) It is completely air-operated; (2) placement of rig tanks is not critical, since the truck has a 70-ft. flexible hose; (3) the pneumatic system will handle a large quantity in a short time—75,000 lb. of weight material in 30 minutes; and (4) the system can be used on bottle-type and standard rig tanks.

Another advantage, says Baroid, is that, in case of blowouts, the system can be used at the hole as a feeder, since it is capable of handling a constant flow of barite as fast as it can be supplied from other trucks.

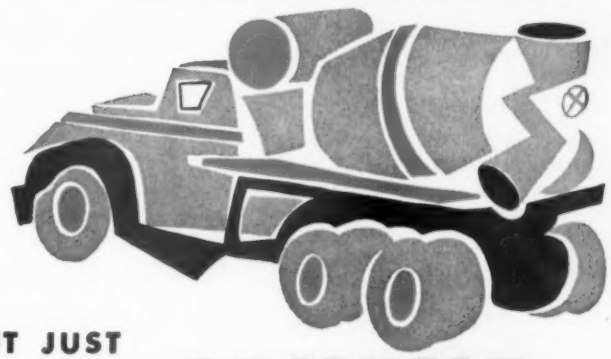
•

Drilling Highlights

North Louisiana—Alvin M. Jackson and Cheyenne Oil Corp. No. 1 H. N. Greene Unit, section 6-23n-7w, Claiborne Parish, was completed as a Smackover oil discovery, flowing 726 b/d of 46.9-gravity oil through 18/64-

THERE ARE ALL KINDS OF

CEMENT...



BUT JUST ONE BEST CEMENT ADDITIVE FOR OIL WELLS!

ONLY Strata-Crete 6* ® TRADE MARK

GIVES YOU ALL 6!

* Lower Cost — this improved perlite cement slurry actually costs less, generally, than the fillup cost of neat cement!
* Easier Placing — Strata-Crete 6 cement slurries require only normal pump pressure, even in slim holes and deep wells!
* Complete Fillups — superior bridging qualities, plus light weight, assure your best chance for complete fillup to desired height!
* Cleaner Perforating — greater resiliency of Strata-Crete 6 has been proved to reduce fracturing and shattering!
* Versatility — Strata-Crete 6 is not limited for use with any type or brand of cement. It is insoluble in crude oil and acid, and gives added resistance to attack by sulphates.
* Resistance to High Well Temperatures — Strata-Crete 6, itself, is not affected by high temperatures encountered in many deep wells!

Strata-Crete 6 can be obtained from your oil well cementing service company.

* *Refers to gallons of water required per cubic foot of Strata-Crete 6*

GLC

GREAT LAKES CARBON CORPORATION

MINING & MINERAL PRODUCTS DIVISION — STRATA PRODUCTS DEPARTMENT

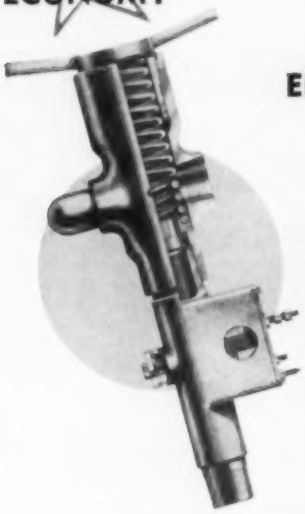
1404 NIELS ESPERSON BUILDING

HOUSTON 2, TEXAS

NEW ECONOMY

NEW EFFICIENCY

NEW FLEXIBILITY



NEW GARRETT MAGNETIC FREE PISTON RECEIVERS

Designed with economy in mind, the new Garrett Magnetic Receivers provide more precise control of free piston cycles — permit an almost unlimited variety of operating procedures—may be used with any of the new Garrett Free Pistons. Supplied with manual or automatic catcher, as desired.

PLUS...AN ENTIRELY NEW FAMILY OF GARRETT FREE PISTONS

TYPE "C-2"

Double metal packer—for oil wells with low gas velocity.

TYPE "C-1"

Single metal packer—for oil wells with high lifting - pressure differentials.

TYPE "C-E"

Rigid packer without valve—a low cost piston for de-watering gas wells.

TYPE "C-M"

Rigid packer with snap-acting valve —for average oil and gas wells.

Garrett Magnetic Receivers and Free Pistons are furnished in sizes from 1¼" to 2½". For complete information, contact your Garrett representative or write for Bulletin No. 159 PC.

USI **Garrett Oil Tools**
Division U. S. Industries, Inc.
P. O. Box 2427, Longview, Texas

in. choke and six sets of perforations between 10,383-497 ft. The discovery is 3 mi. north of comparable production, and 1¼ mi. east of Pettit production at Haynesville field. It also is believed to be the largest oil find in North Louisiana in years.

Oklahoma—Sinclair Oil & Gas Co. No. 1 Spafford, section 33-23n-16w, Major County, flowed 5,571,000 cf/d of gas plus 53 b/d of condensate through 25/64-in. choke and perforations at 8,271-358 ft. in the Hunton (Devonian). The discovery is 3½ mi. northwest of the one-well South Campbell gas field. There is no other Devonian production in northwestern Oklahoma.

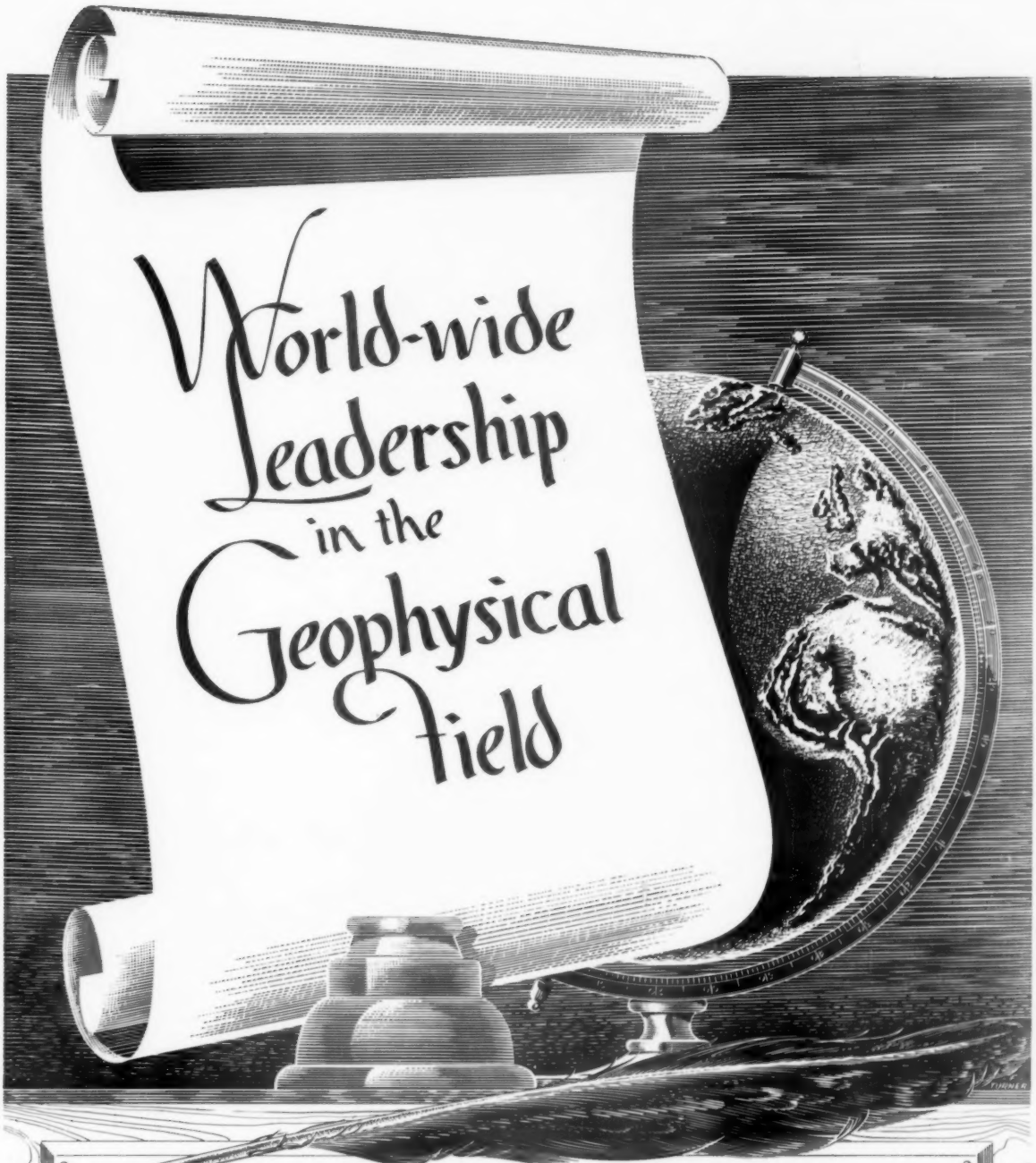
In McClain County, Weimer & Fitzhugh and Jones & Pellow Oil Co. No. 1 Hester, section 23-6n-4w, flowed oil at an estimated rate of 40 bbl. hourly on 46-minute test of the First Bromide (Ordovician) at 11,809-65 ft. The prospect is 3 mi. west of East Criner field, which also produces from the First Bromide, about 2,000 ft. higher.

West Texas—Tennessee Gas & Oil Co. No. 1-A Kay Kimball, section 104, block H, D&W survey, Gaines County, reef pay oil discovery, was completed for 289 b/d of 27.7-gravity oil through 14/64-in. choke and perforations at 10,386-97 ft. and 10,402-08 ft. The company has identified the pay as a reef zone in the Wolfcamp, basal Permian. The discovery is 5 mi. south of Felmac field.

Mississippi—Central Oil Co. and Zach Brooks Drilling Co. No. 1 Mississippi Investments, section 1-8n-12w, within the city limits of Laurel, Jones County, flowed 252 b/d of 27-gravity oil through perforations at 11,258-69 ft. in the Paluxy sand. The discovery is 7 mi. southwest of Reedy Creek field and 10 mi. southwest of Soso field.

North Dakota—Pan American Petroleum Corp. No. 1 Bakken Unit, section 29-161n-95w, Divide County, recovered 2,520 ft. of gas-cut oil and 5,245 ft. of gas-cut salt water on 3-hour drillstem test at 7,780-865 ft. The prospect is 6½ mi. northwest of North Tioga field and 5 mi. south of Noonan field.

California—G. R. Nance No. 1 Bucher, section 20-3s-13w, Los Angeles County, flowed at the rate of 1,032 b/d of 33-gravity oil and 1-million cf/d of gas through ½-in. choke and perforations at 6,550-7,670 ft. for a new fault block discovery ¼ mi. east of South Rosecrans field.



Western GEOPHYSICAL COMPANY

AND ITS AFFILIATES

Principal Office: 523 WEST SIXTH STREET • LOS ANGELES 14, CALIFORNIA

AFFILIATE AND REGIONAL OFFICES THROUGHOUT THE WORLD

About Electro-Motive Power on Movible No. 2—

Control center is located beside draw works. D. W. Goodyear, driller, stands beside Electro-Motive control console that provides complete control of all Diesel-electric equipment.

Movible Offshore Company Rig No. 2 as it looked in November in West Cameron Area. Rig was launched in September 1957. Platform is designed to drill in depths up to eighty feet. Submersible structure measures 200′ by 200′.

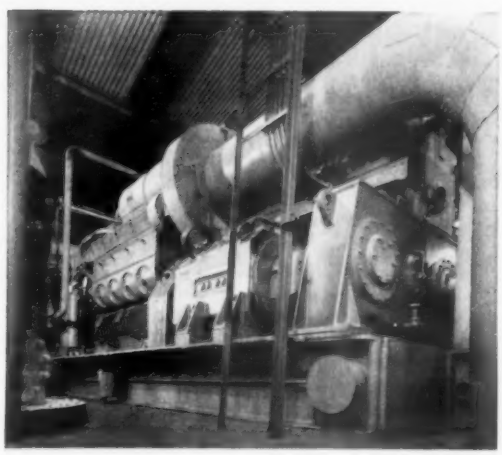
"IT'S GOT THE FEEL OF STEAM...PLUS ONE COMPANY SERVICE"

In less than fifteen months time, Movible Offshore's Rig No. 2 has drilled an impressive 90,000 feet of hole. Though superintendent R. L. "Ray" Meadows is an old steam man, he has this to say about Electro-Motive Power: "It's got the feel of steam, it's flexible and has all the reserve extra power needed for any emergency".

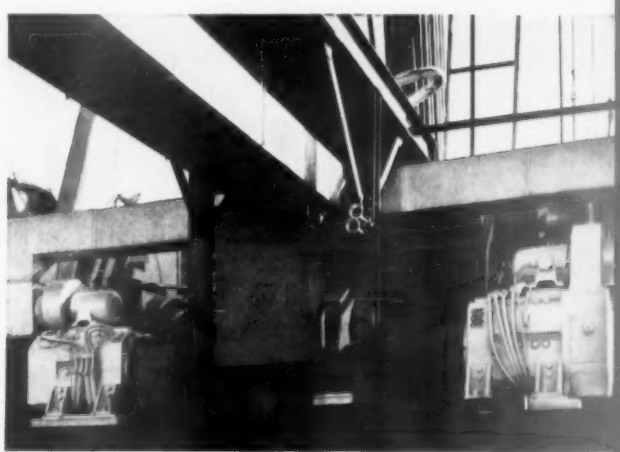
When Ray Meadows refers to "one company service", he means that Electro-Motive is responsible for the complete power system. One source for service and parts on both engine and electrical components.

Probably the most valuable part of Electro-Motive service is what Ray calls "willingness to help". In one instance, an idea by Movible with an assist from Electro-Motive effected a substantial cost savings.

Before you decide on any drilling power, see your Electro-Motive representative. Let him tell you about this equipment. After that, you will know why more offshore rigs use Electro-Motive Power than any other Diesel-electric system.



Engine room on Movible No. 2 is compact and neat. Three Electro-Motive engine sets, each driving two d.c. generators, supply power to drive all motors. Current Electro-Motive model SR-10 is rated at 1,000 horsepower.

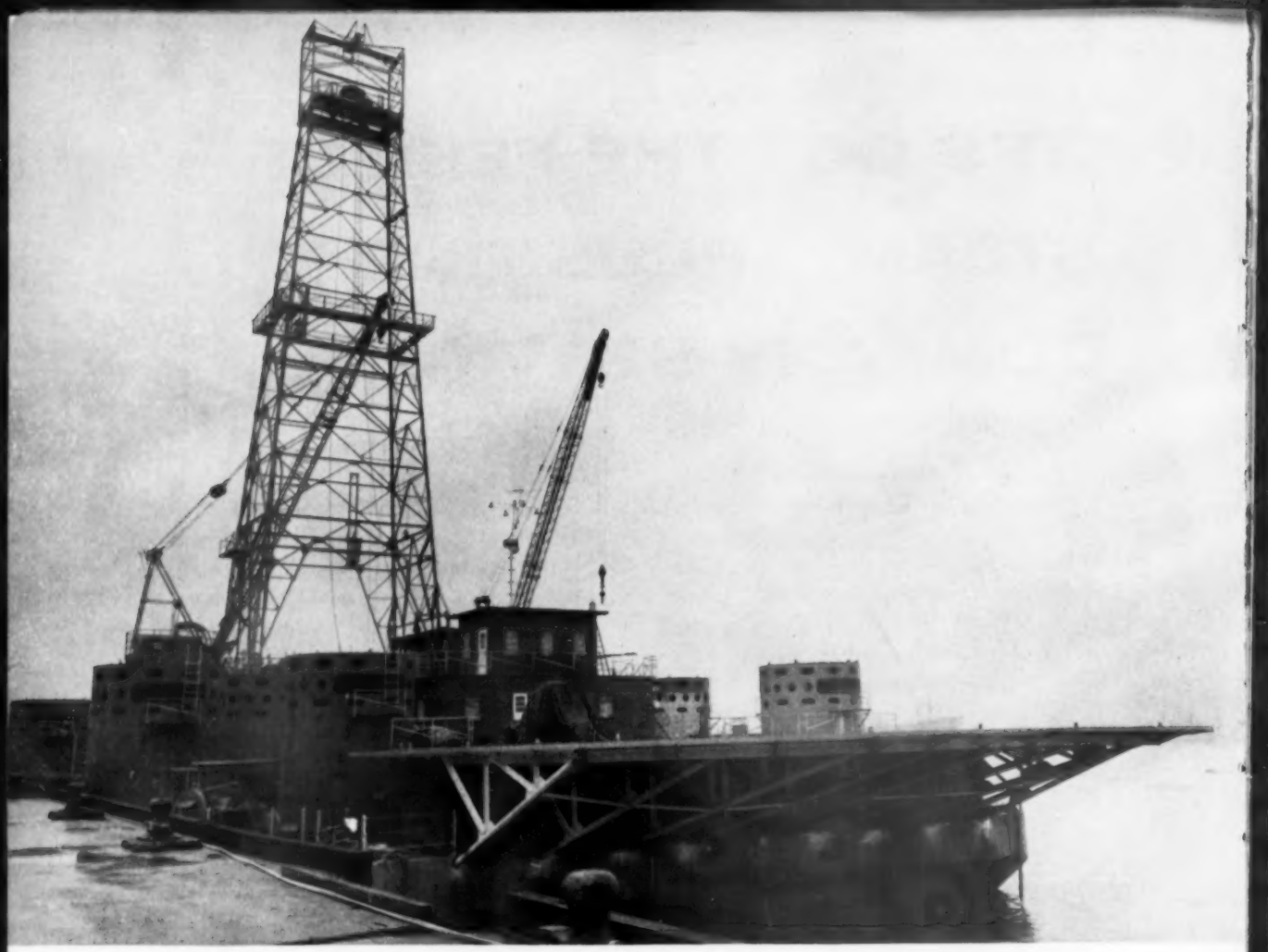


Two Electro-Motive drive motors are used to power the draw works. Similar drive motors are used on mud pumps and rotary. Interchangeability of parts between all drive motors and generators provides savings on maintenance and service.

ELECTRO-MOTIVE DIVISION · GENERAL MOTORS

LA GRANGE, ILLINOIS • *In Canada:* **General Motors Diesel Limited,** London, Ontario

Petroleum Industry Sales Offices: Houston, Texas; Los Angeles, California



"MR. LOUIE," the offshore's newest mobile, was christened this week. The barge is designed for deep-water drilling.

Offshore's Oil Industry Is Flexing

Look for the offshore oil industry to show more punch this year. But while the situation, over-all, should be better than it was in 1958, it probably won't match the pace set in 1957.

An official of one fairly active offshore operator hits the mark probably as closely as anyone with this estimate: "Drilling during 1959 should strike somewhere between the 1957 and 1958 rates."

Such a rate would bring total completions in 1959 to between 600 and 700 wells off Louisiana alone.

Activity already is showing signs of picking up.

One drilling contractor reports: "We had more inquiries in January this year than in any two months during 1958. And we have received our first 'legitimate' inquiry for a tender bid in several months."

This particular company has all of its mobile drilling units at work now. At one point during the big drop in offshore drilling early last year, several of them were laid up.

Companies and company groups with large reserves are drilling, and will continue to drill, a large number of development wells. All offshore operators contacted by PETROLEUM WEEK report that they expect to be as active as in 1958, or a little more so.

Wildcatting won't be really strong, largely because there haven't been any big lease sales (except off California). There will be some wildcatting, however, on expiring federal leases that haven't been validated.

There is continuing strong faith in the offshore potential despite the check-rein on all-out activity. The major difficulty—one that has been with the offshore industry since its birth—lies in the high costs and the comparatively slow rate of return.

"There's no question about it. The offshore is an excellent hunting ground—a sleeping giant," is a typical comment.

"The trouble is that one is kept off many good prospects because leases are not available except at sales, held rarely, and because of the high cost of leasing and drilling in the face of relatively slow payout."

Some offshore operators actually were considering pulling out not too long ago. None has, however, due largely to gas discoveries. Such pull-out talk has all but disappeared now.

There is no question whatever that new reserves as large and rich as those already found could be proved at many additional spots along the Louisiana coast.

The bigger geophysical prospects—generally located more quickly and clearly than onshore—are "well known

continued ▸

WILDCAT is drilled from "Julie Ann" in 100 ft. of water.

Its Muscles Again

to everybody," says a spokesman for one company.

"We haven't been too happy, actually, to see them all spelled out and specified in speeches and papers," he adds. "Why tell everybody what you've spent a great deal of money finding out."

But, this official adds, the high costs involved prevent many companies from taking advantage of the knowledge.

The cost barrier, however, may not prove so insurmountable in the years ahead. As one authority points out: "We've learned how to cut costs offshore considerably the past few years. The experience that is building up should lead to further cuts, and this should bring offshore ventures closer in line with onshore drilling."

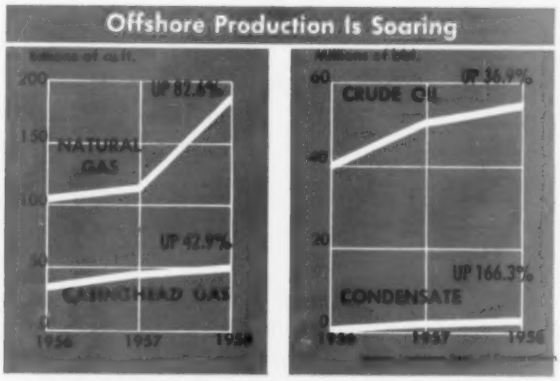
The success ratio off Louisiana remains very high, even though much of the drilling is on salt domes.

As one geophysicist notes, rim-type reservoirs and complex faulting sometimes "makes it easy to miss production."

Actually, during 1958, there were 111 dry holes out of the 613 holes drilled—which is a very comfortable margin of producers.

The big majority of wells completed, however, were of the development type.

Off California, the situation is one of "watchful waiting" as operators test offshore parcels.



OFFSHORE GAS PRODUCTION is outstripping crude.

The state awarded five 3,840 acre tracts in the Elwood-Point Conception area off Santa Barbara County last summer (PW—Jul.4'58,p12). But the state is sitting tight now, with no further lease offerings anticipated in the near future. So far, only a small portion of state-owned offshore property (60,000 acres of an estimated 9-million) is under lease.

Says one operator: "The state is gambling, figuring that discoveries and development work on the parcels that have been awarded will make the bids all the better, when and if the buffer leases (between the tracts already awarded) are put on the block."

Operators, on the other hand, haven't applied for any additional lease offerings.

Over the past few years, some operators have kept a fleet of 11 coring vessels busy checking prospective leases. No such operations are under way now.

There are signs that California's leasing policies may be changed. A slowdown in offshore operations could result.

Alan Cranston, state controller, recently said he would seek legislation to abolish the cash bonus system on offshore leases and substitute a higher royalty scale.

Several state legislators have hurled charges of "giveaway" with respect to leases already awarded. Nearly all are urging higher, sliding-scale royalties.

But effects on the offshore industry can't be determined, or even anticipated, until some of the proposed changes are spelled out and adopted, if ever.

Operators, meanwhile, are moving ahead with tests on the five California offshore parcels leased last summer.

Here's a rundown of last-known activity on the parcels:

Parcel A—Phillips Petroleum et al, using Western Offshore Drilling & Exploration Co.'s drilling barge, drilled its first test to total depth of 7,355 ft. and suspended activity Jan. 16.

Parcel B—Standard of California announced last week that it has abandoned its first test, drilled to 6,670 ft. from the former coring vessel, CUSS 1.

Parcel C—Standard of California et al, using Sun Marine Drilling Co.'s mobile, Pacific Driller, found "encouraging" gas-condensate shows in its first hole, which

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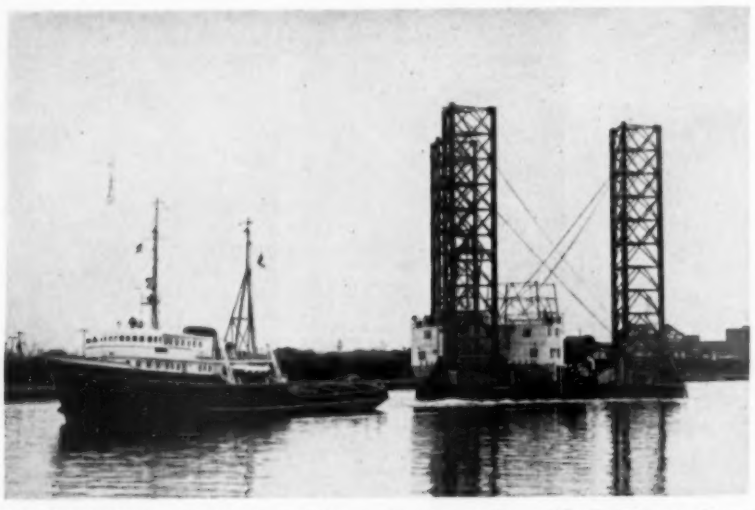

ON ITS WAY to the Persian Gulf goes Reading & Bates "C. E. Thornton," one of several such platforms sent overseas when the offshore slump hit the Gulf area.

FIRST MOBILE to drill on U.S. side of Lake Erie is tied up for winter.

went to 7,748 ft. The hole was abandoned, with provision for possible re-entry.

Parcel D—The Texas Co. et al drilled its first test —No. 1 Texas-Monterey—to 7,513 ft. The hole was plugged and temporarily suspended Jan. 28. During drilling, two favorable formation tests were made in open hole. In being moved to a new location 11 ft. west, however, the Pacific Driller, California's only mobile platform, was damaged and had to be towed to Long Beach for repairs.

This parcel was leased last July for $23,711,538, or $6,175 per acre—the highest ever paid for either Gulf Coast or California offshore acreage.

Parcel E—Phillips is drilling the first test on this parcel, leased by Phillips, Pauley, Kerr-McGee Industries, Inc., et al.

Drilling also is continuing on previously issued parcels, some of which have already shown good potential.

At Summerland, Standard Oil Co. of California, Western Operations, Inc., and Humble Oil & Refining Co. have hit what Standard, the operator, has called "an oil discovery of most important proportions" on their 5,500-acre lease off Santa Barbara County (PW—Nov.28'58,p14). The well, bottomed at 7,400 ft., flowed 36-gravity oil at an estimated rate of 865 b/d. A second test is bottomed at 7,850 ft.

At Rincon, off Ventura County, Richfield Oil Corp. (L.A.) has completed six producers and is drilling its seventh hole from a man-made island. The company plans to drill about 70 wells from the island to develop an 1,175-acre state lease.

At Coal Oil Point, off Santa Barbara County, Richfield a few weeks ago abandoned an evaluation test in a 1x3-mi. lease held jointly with Honolulu Oil Corp. and Signal Oil & Gas Co. Drilling was carried out in 300 ft. of water—utilizing the former coring vessel, Rincon. The hole, spudded on Dec. 1, 1958, was drilled to 6,818 ft., and was abandoned on Jan. 25.

The situation off the Texas coast still isn't very exciting.

As in the case of offshore Louisiana, the most significant aspect in Texas offshore activity is the continuing rise in natural gas production.

Offshore Texas gas wells—22 of them—are producing at a total rate slightly above 1.2-billion cu. ft. monthly, for an annual total of more than 15-billion cu. ft. This compares with 923-million cu. ft. produced during 1957. While the increase in gas production is substantial, the total is still small when compared with Louisiana totals. What's more, there have been no big hits off Texas, nor are any big drilling programs under way, or being planned.

A bit more than 12,000 bbl. of condensate is being stripped from this gas monthly.

And 16 oil wells are producing at the rate of 37,246 bbl. monthly, plus 111 million cu. ft. of casinghead gas.

It is doubtful whether any Texas offshore leases will be offered this year.

The state probably will be offering some onshore and bay leases this summer, but an official says the matter of offshore leasing "hasn't been discussed."

"We don't anticipate putting up any in the Gulf," he adds. "It depends, of course, on whether we have any expression of interest from the operators."

A recent state attorney general's opinion has clarified the status of some state-issued offshore leases—insuring their extension until federal-state litigation is settled.

The state held its first big offshore lease sale in December, 1953, after passage of the federal Submerged Lands Act. Those leases, unvalidated by production, would have expired in December, 1958. A state law, however, provides for a suspension of the deadline in the

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event of litigation. The state has been made a defendant by the U.S. in a suit originally brought against Louisiana.

According to the Texas General Land Office, there are 65 leases, totaling some 130,810 acres, which lie in the disputed zone between 3 mi. and 3 leagues from land.

Because of the legal opinion, the terms of any leases affected by the litigation will be extended to one year beyond the time of final settlement.

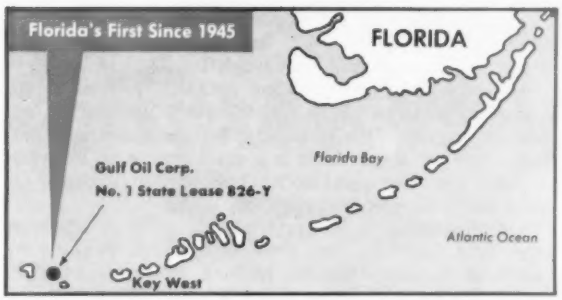
And off the southern tip of Florida, Gulf Oil Corp. was scheduled to begin drilling this week on the first offshore test for that state since 1945.

The Gulf test—No. 1 State Lease 826-Y is located on a 117,000-acre tract in Florida Bay, about 30 mi. northeast of Key West. The venture, projected to 15,000 ft., is being drilled from Kerr McGee's mobile, Kermac No. 45, in about 18 ft. of water.

State geologist Robert Vernon, who calls the test one of the most important in the state's history, reports that it is being drilled as a geophysical prospect to gain information, and to hold leases.

The Gulf test is the first off the Florida coast since Magnolia Petroleum Co. drilled No. 1 State Block 4B to 7,000 ft. in 1945. And even that could not be called an offshore test, strictly, since it was directionally drilled from land.

Vernon says there have been significant shows of oil in previous tests near the Keys, but operators have been unable to locate "the main pool of oil."



FLORIDA OFFSHORE DRILLING could become important if Gulf Oil hits on this wildcat, which has just been spudded.

The American side of Lake Erie, where the first season of gas exploration resulted in discovery of a small well, now shut in, will be the scene of further drilling this year.

New York State Natural Gas Corp., using a four-legged mobile, the "Argonyn," drilled the first test in block 1, a 19,130-acre tract just east of the Ohio-Pennsylvania border. The test was drilled to 5,098 ft. and flowed 200,000 cf/d of gas, enough to keep hopes up.

The rig was taken to Erie (Pa.) harbor when the lake navigation season ended late last fall. Come spring, the "Argonyn" will begin drilling in Block 2, 35 to 40 mi. east of the first test.

Offshore Gas Production Is Soaring

The Gulf of Mexico off the Louisiana coast continues to be the offshore "big time."

Unheralded, and all about unnoticed in 1958, activity in this area showed a respectable total of 502 successful completions.

The results—393 oil wells and 109 gas wells—were appreciably better than the 368 oil and 76 gas wells completed in 1956, which was considered a boom offshore year. But the total fell short of the record 470 oil and 97 gas wells completed in 1957.

Operators started 1958 by completing 47 oil and 4 gas wells in January, then held monthly completions during the remainder of the year at not less than 24 oil and 6 gas.

The trend toward multiple completions, which are counted by the Louisiana Dept. of Conservation as individual wells for each separate producing zone, helped to swell the total significantly, for the first time.

Though most of the Louisiana offshore effort in 1958 was spent on development drilling, there were five new fields discovered—3 gas and 2 oil.

This compares with the 4 oil and 7 gas fields brought in during 1957 and the 6 oil and 14 gas fields discovered in 1956. The low 1958 figures underscore the emphasis put on development work.

But by far the most dramatic facet of the today's offshore picture is the sharply increased production of gas and condensate.

Within two years there has been an increase of more than 82% in natural gas production, and a jump of more than 166% for condensate.

This remarkable trend—noted by PETROLEUM WEEK a year ago (PW—Feb.21'58,p54)—seems likely to continue for some time.

In 1956, offshore Louisiana produced 101.4-billion cu. ft. of natural gas. In 1957, production totaled 112.1-billion cu. ft., and in 1958, the total climbed to 185.1-billion cu. ft.

Within the same period, condensate production rose from 834,194 bbl. to 2,221,643 bbl.

At the same time, crude production was rising almost 37%, and casinghead gas production was increasing almost 43%, over the 1956 level.

The rising condensate production could have a big impact on the crude market.

This hinges, of course, on whether the output of condensate can continue to increase at anything near the same remarkable rate. Obviously, such factors as demand, pipelines, and the like, will have a prime bearing on the growth curve.

One of the more interesting aspects in the current situation, however, is that natural gas production has become more worthwhile from some standpoints than crude production.

continued ▸

SPECIAL REPORT

OFFSHORE OIL

Some offshore operators are reluctant to admit this. In general, their view is: "We're still after oil out there—we're still looking for oil." But they usually add: "Of course, we aren't passing up any gas."

An official for the operating company of one group reflects what seems to be the prevailing attitude at the moment, saying: "We're putting a rig on a lease right now where we think there is a good chance of bringing in some gas. Our partners want us to drill it, so we're going to."

A representative from another major offshore operator says: "We don't use the term 'offshore oil production' any more in describing our offshore activities. Instead, we use the term 'offshore oil and gas production.' It just got so we had to. We're producing too much gas out there to ignore it."

The reasons for the shift to gas are clear enough. They are, simply, that, when compared to crude, there are virtually no production restrictions on gas or condensate, and the demand for gas is high.

While price currently is a subject of litigation, gas prices are reasonably good, ranging on up to above 20¢ per Mcf.

But the big reason is that production can be just about as high as the purchaser can take—and the rate of take, up to now, at least, has been very good. In some cases, it has run well above the agreed minimum.,

Much of the offshore gas is very rich in condensate. Here again, production is virtually unrestricted, compared with crude allowables.

Further, the cost of developing a gas field is less than that of converting an offshore oilfield into an economic asset.

Depending on the initial capital investment, distance from shore, and the like, offshore crude production must be pushed beyond a certain minimum if the operator is to make any profit at all.

Since he is held to a certain per-well allowable, he must drill a substantial number of wells to reach this rate. On the other hand, the number of gas wells he must drill are much fewer—and a gas well will drain a larger part of the reservoir. This adds up to a considerable differential in development costs.

This point of numbers is emphasized by the fact that, at year end, 1958, 1,539 of Louisiana's 1,707 producing offshore wells were oil wells, 168 were gas wells. And many of the gas wells are capped, awaiting pipeline connection, and are not yet contributing to the upsurge in offshore production.

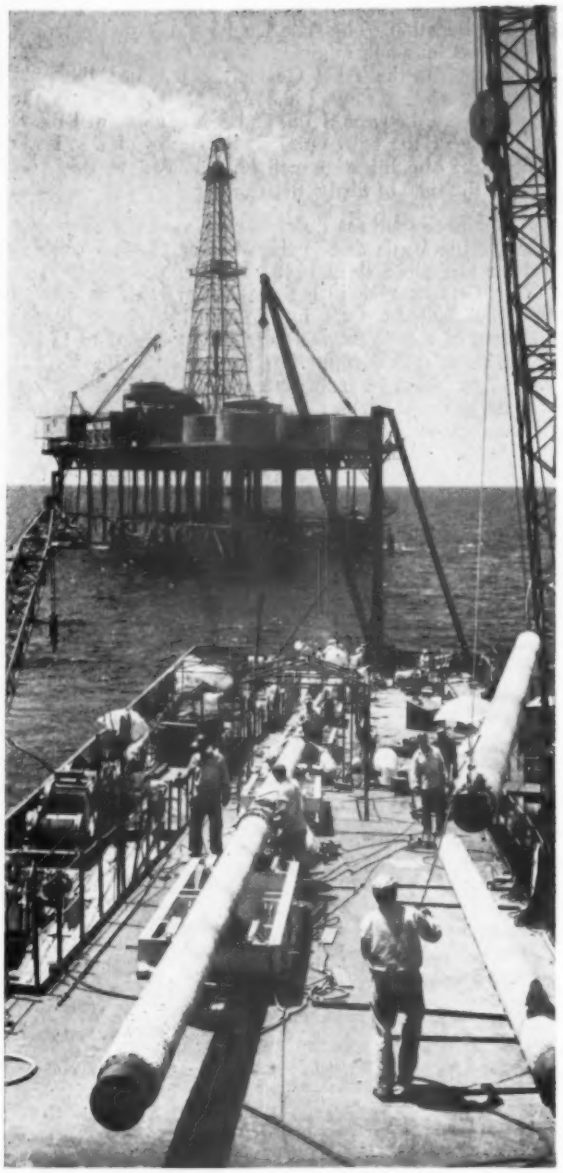
Although the 109 gas wells drilled last year make up the largest total drilled offshore in any one year, they still amounted to just a little more than one-fifth of total successful completions.

While the current situation seems to favor gas rather than crude production, it may be only temporary, of course. And it doesn't mean there has been a sudden halt to the search for crude.

Operators with large crude reserves are drilling them as fast as they can. This is particularly true of prolific fields, such as those around the Delta, at Bay Marchand, and in Eugene Island, Ship Shoal, and Grand Isle areas.

The balance could be tipped toward crude production by any of several factors. Lifting the lid on allowables, for example, would make a big difference. Actions—administrative or otherwise—that would tend to depress field prices for gas, or make it more difficult to produce, would also have a bearing.

The situation could also be affected by a tapering off in demand for offshore gas—though this is unlikely.



MORE PIPELINES, such as this one off Louisiana, are being laid in the Gulf area to handle increasing production.

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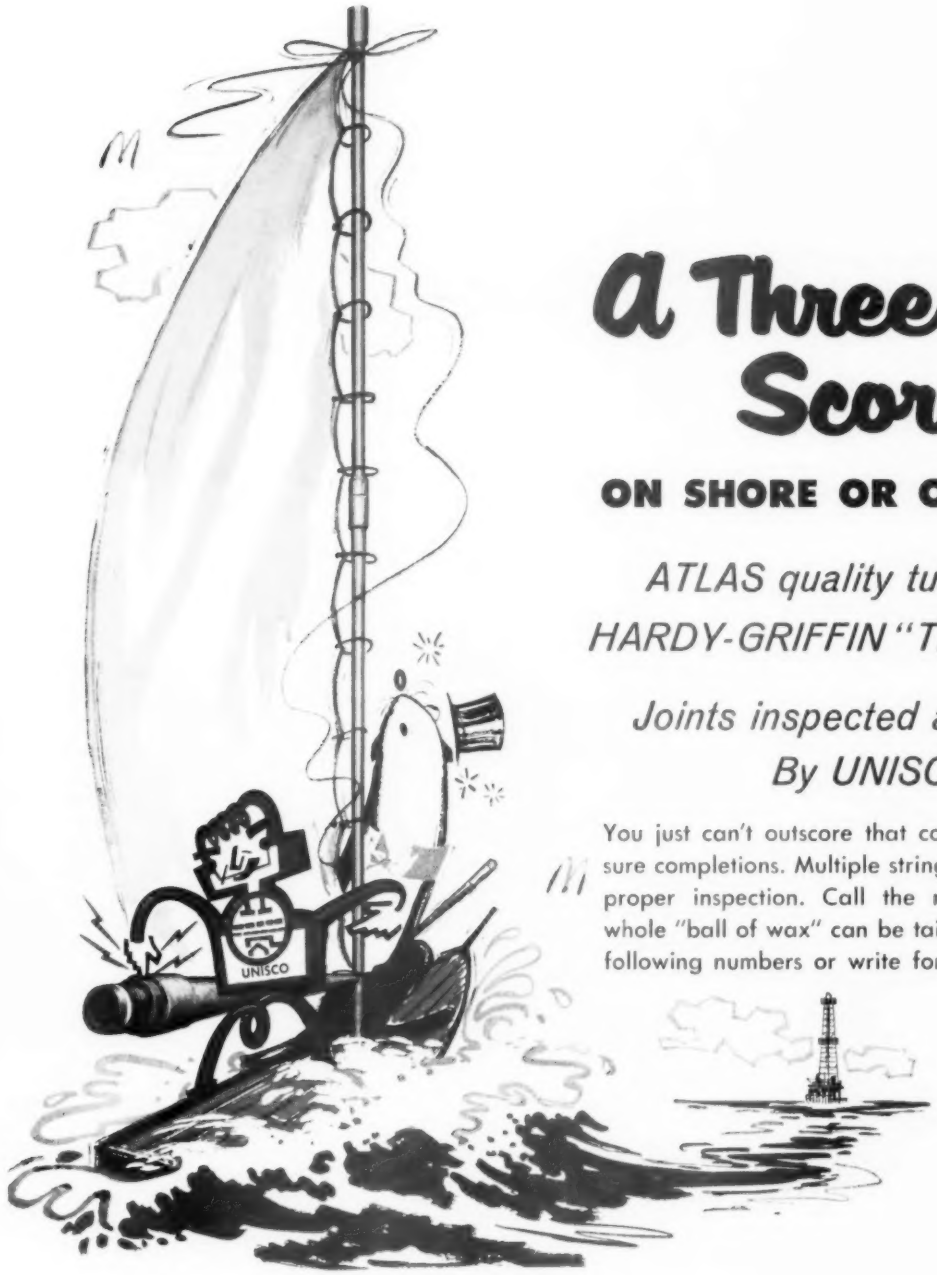

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The balance could be tipped toward crude production

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The Proration Issue Is a Tough One

One of the most annoying of many problems to offshore operators is the matter of crude allowables. Operators contend the allowables simply aren't large enough to offset higher investment and operating expenses.

Offshore operators maintain that (1) leasing, drilling, and operating costs are greater offshore; (2) the risks are bigger; and (3) incentives are inadequate.

They point out that it costs as much as $1-million to complete an offshore well that would cost $300,000 or less onshore.

There is also the "terrific cost" of maintaining offshore production, of transporting all supplies and much of the production by water or air—all in an atmosphere of hazard from wind and wave.

The rule change most discussed would base offshore allowables not only on well depth, but also on the depth of water and the distance from shore.

Current Louisiana per-well allowables are based on well-depth brackets. Offshore wells have higher allowables, but operators say the differential isn't big enough. For example a 5,000-6,000-ft. onshore well has an allowable of 54 b/d; a similar well offshore gets 100 b/d. A 9,000-10,000-ft. well has 93 b/d onshore and 157 b/d offshore, and so on. An offshore well attains the maximum state allowable of 333 b/d at 16,000-17,000 ft. Onshore, wells must reach 19,000-20,000 ft. to get this production rate.

The principle of including water depth and distance from shore rests squarely on economics.

"It is much cheaper to drill and produce a 12,000-ft. well on land than in 30 or 40 ft. of water—and it costs one hell of a lot more for that same well in 80 or 90 ft. of water—say 40 mi. out," says the offshore manager for one group.

Without some kind of change, say the offshore men, there surely isn't going to be the kind of offshore development that the industry and nation should expect.

Says H. C. Teasdel, president of The California Co., "In this country, every day, the national economy becomes more dependent on oil than ever before. The cheapest and best source of energy is oil. Here we are, becoming increasingly dependent on foreign countries for our source of oil, for the energy we have to have.

"Yet right in the Gulf of Mexico is this country's most promising oil frontier. Here we have reserves that can be developed free from controls which may be dictated by foreign countries.

"With due regard for the increased hazards and risks in working offshore, it would appear that an operator taking these risks should get some kind of financial encouragement to develop offshore resources.

"He should certainly not be crippled with regulations requiring expenditure of money for unnecessary equipment, needless restrictions on operations, and expensive installations costing more than is necessary to find and produce the crude.

"He just can't operate under today's taxes without percentage depletion—nor can he compete economically unless he gets a preferred offshore allowable."

The offshore operators quite plainly are looking for governmental action to correct what they consider to be inequities.

"Our hope is that the state will take the initiative in this matter and try to do something to increase offshore allowables and encourage the industry to go out there," says one high company official.

"Not only is the state losing potential royalty revenues because prospects haven't been drilled, but it also is losing all of the tax revenues which are generated by a high rate of offshore activity. These operations affect supply and service companies, crew boats, grocery stores, and what have you—just about all phases of the state economy."

The real hitch is that offshore allowables can't be insulated against the stresses of onshore economics.

An increase in offshore allowables means a dent in the onshore rate, barring big changes in market demand or some kind of drastic revision in the over-all proration method.

An attempt was made last summer to find some approach to a revision of the proration schedule.

Various proposals were advanced. For instance, it was suggested that surface acreage and well depth be the criteria; that surface acreage and well depth be considered, with three separate categories for well depth—North Louisiana, South Louisiana, and offshore; that acreage, well depth, and sand thickness be the determinants.

With the help of electronic computers, these various proposals were worked out in their application to nine specific, representative Louisiana fields. Both industry and state conservation representatives participated in the session. One participant reports:

"We learned a lot about how the plans actually would work out. And we really threshed things out. In fact, the discussion got pretty heated at times."

But nothing conclusive came from the session. And, as far as can be determined, there are no concrete plans at present to continue this effort. A conservation department official says: "At the present time the possibility is slight, if it exists at all, that the allowables method will be reconsidered any time soon."

The state authority evidently prefers that the industry should propose changes, and definitely isn't considering initiating any itself.

So far, federal procedures for offshore production practices are basically the same as state rules.

The creation of a separate, and different, federal proration system is a possibility that could have far-reaching effects. With offshore jurisdiction still in litigation, no one knows at this point how much of the offshore area eventually will wind up under federal control.

So the full extent of the impact of such a move isn't clear now.

There apparently has been some unofficial sounding-out on the possibility recently, without any discernible

continued ▸

SPECIAL REPORT
OFFSHORE OIL

results. Unofficially, federal authorities are going along with state rules on such factors as spacing, lease development, and proration.

As long as this continues, offshore allowables—running, at present, a bit over 171,000 b/d—will continue to be fitted in with onshore allowables.

If the federal government should set its own—and higher—rate, however, it would touch off a furor.

The Interior Dept. already is doing some thinking about the problem of separate and different proration rules.

A decision will have to be made when and if the U.S. Supreme Court awards a sizable portion—if not the bulk—of the disputed offshore lands to the federal government by its settlement of the boundary dispute.

Though there almost certainly will be some pressure on the federal government to permit higher production, the states will argue strongly for conformity of offshore to onshore production. It must be remembered that federal action could lead to usurpation of state police powers. Normally, however, the federal government permits abutting states to exercise police powers in such cases as this.

There is some opinion at Interior that the emphasis should be on "getting as much oil out of offshore lands as possible," over the long run.

Supporters of this view interpret the legislative language to mean just that. It is felt that the Secretary of the Interior possesses sufficiently broad administrative latitude to work out coordinated state-federal rules on such matters as well-spacing, so no great difficulties are expected in that respect.

But limitation on production is another matter. Nothing has been resolved as yet, and won't be for some time. But this eventually is going to be a very knotty problem.

Another problem, less pressing but still worrisome to offshore oil men, is the matter of leasing.

Federal (Section 8) leases, which were issued in 1954, and which haven't been validated yet, expire this year. Of the total of such leases issued, 207 are still in effect. As of year-end, 1958, there was production on 52 of these—51 off Louisiana and 1 off Texas. The remaining 155 were still unproductive—134 off Louisiana and 21 off Texas.

Some of the 1954 leases have already been relinquished, when operators concluded they weren't likely productive areas.

In a few instances—where the geological structure permits—it may be possible for an operator to "save" more than one tract by drilling a producer on a common corner.

In some cases, also, unitization proposals are being considered as a conservation measure. This would have the added effect of validating undrilled acreage.

When the federal government originally validated previously-issued state leases (Section 6 leases), some were continued beyond the expiration date, provided the operator was drilling.

It looks, though, as if many of the unvalidated tracts won't be drilled this year, and will expire, mainly because the operators evidently feel they aren't worth wildcatting.

Interest seems to be reviving in possible new lease offerings.

As the head of one offshore operating company says, "One of the main things wrong right now is that there are no new, fresh areas to work on."

Unofficial discussions with government authorities during the past few months leads him to believe that other offshore operators would join him in "welcoming a new lease sale."

There isn't much likelihood, however, that bidding generally will soar to anything like the dizzy heights it attained a few years ago.

Louisiana is offering some new offshore tracts for the first time in several years. If the response is good, there may be some federal tracts offered this year, too.

The state-offered leases lie in Zone 1, within the 3-mi. limit. Indications are that the offshore operators will do some active bidding on the tracts.

Federal officials are watching the scheduled sale closely, and are prepared to offer some U.S. leases beyond the so-called "twilight zone" of conflicting jurisdictional claims if operator interest seems strong enough.

For the first time, a federal lease sale is slated this year for acreage off the Florida coast.

Operators have been asked to nominate tracts they would like to bid in the Marquesas Area, off the southwest tip of the state. If these nominations indicate that it will be worthwhile, the federal government is ready to put some leases on the block.

Gulf's test in Florida Bay, off the Southern tip of the state, will undoubtedly be a major factor in determining operator interest.

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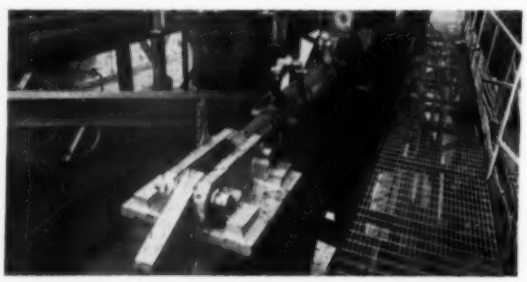

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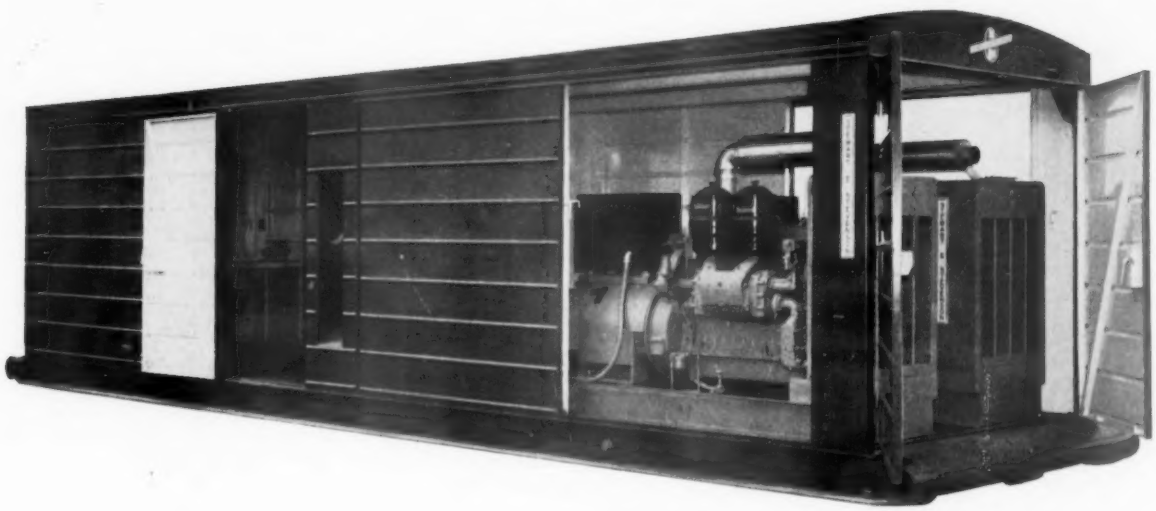

Complete with power plant, machine shop or field office

Here is a completely new portable power plant design, now available in sizes ranging up to 1000 KW, adaptable to skid or trailer mounting.

Units like the one shown are now in service throughout the Southwest and in many foreign locations, providing dependable electric power for lighting and general purpose use. This unit has two Model 6-GD75, Stewart & Stevenson General Motors Diesel powered AC Generator Sets, rated 75 KW each. Space is provided in the unit for a machine shop, storage or a field office.

Particular attention has been given to the design of the enclosure on Stewart & Stevenson Utility Units and Generator Sets. For example, the unit featured here utilizes formed channel sections and framing which greatly reduces weight while actually providing greater strength and rigidity.

The unit illustrated is only one of the many combinations available. Let us know about your requirements for portable power. Designing units for the unusual and "tough" jobs has always been a Stewart & Stevenson specialty. Call, write or wire today.

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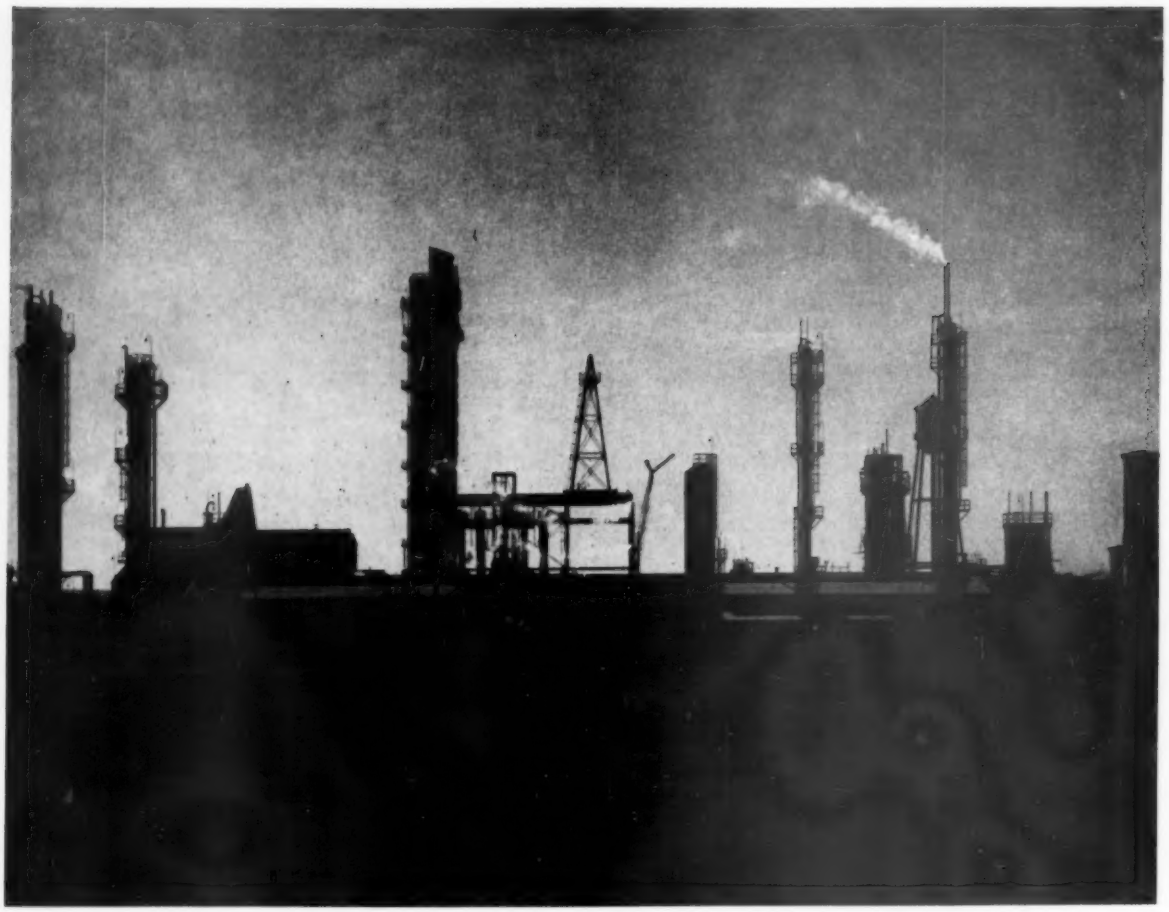

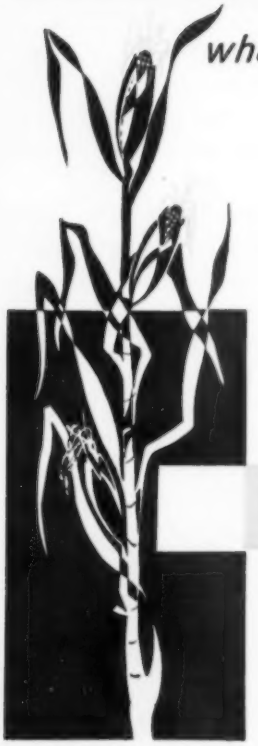

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From fertilizer to nuclear power, the petrochemical industry demands unerring accuracy and efficiency from heat transfer equipment. Western is happy to serve these ends.

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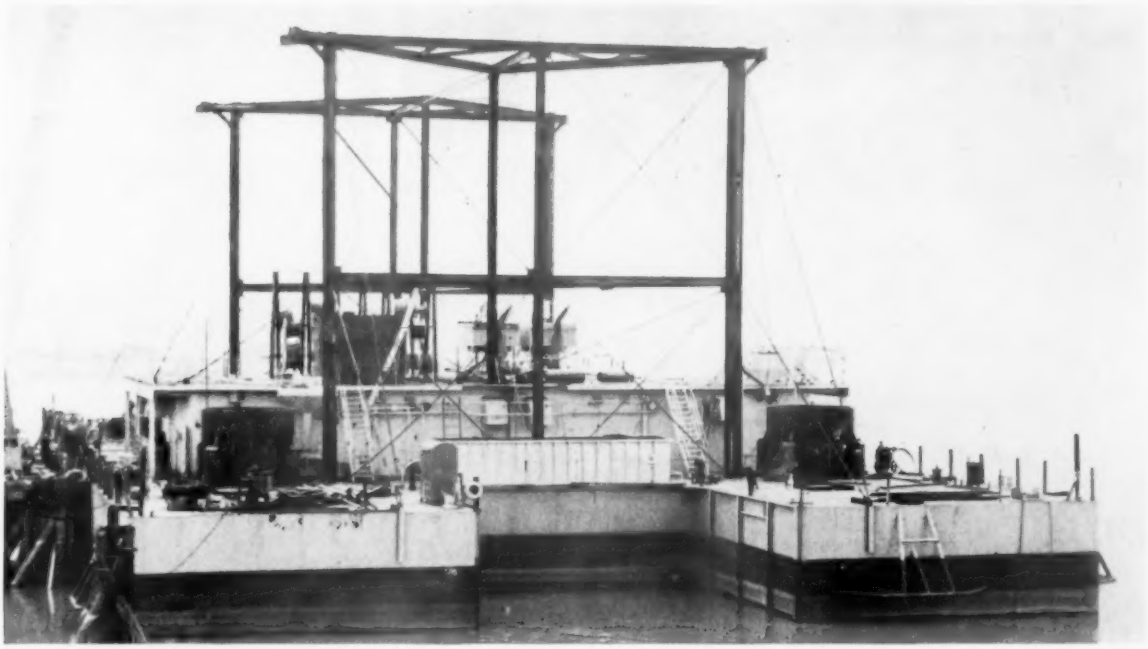

NOBLE BARGE CO's S-66 is scheduled to see service later this year. It's one of few such barges under construction now, while . . .

Platform Construction Is Slack

This weekend's scheduled christening of Universal Drilling Co.'s "Mr. Louie"—a mobile platform designed to operate in 120 ft. of water—marks a welcome contrast to the slackened activity in such construction the past year or so.

The new mobile, named for Louis J. Roussel, president of Universal Drilling, was built at Houston by Port Houston Iron Works, and towed to its home port of New Orleans for the Feb. 21 christening.

The christening comes at a time when many offshore units lie idle in sheltered anchorages. Construction of such units also is almost at a standstill when compared to the pounding rate of activity a year and a half to two years ago.

The 12-legged, 204-ft.-long "Mr. Louie" has several unusual construction features.

"Outrigger" legs provide greater stability, says a company official, because they anchor the mobile over a much wider base on sea bottom.

The unit also has double-locking hydraulic jacks, designed to provide maximum safety and stability while the platform is being raised and lowered. Pontoon "wings" contribute further to stability.

The 4,000-ton mobile, designed to withstand winds up to 130 mph., is 133 ft. wide when the stabilizing wings are included, but the actual hull width is only 95 ft. The three-well derrick is 140-ft. high.

Each leg is 210 ft. long, to provide 40-ft. wave clearance in 120-ft. waters. The 12 leg jacks, Roussel's invention, are unique in that each 6-ft.-diameter leg is ringed with deep grooves on 18-in. centers, into which positive locking jaws fit to grip the entire circumference of the leg during each step of the lifting or lowering process.

There are two sets of these jaws, one fixed to hold the legs in position, while the other moves down to grip the next groove for a full 4-ft. stroke of lift. Four hydraulic cylinders on each set of movable jaws give the jack a lifting power of 720 tons.

Another large offshore unit—Noble Barge Co.'s S-66—is slated to come off the ways sometime this year.

The keel for the S-66 was laid in June, 1957. The big mobile has been taking shape slowly since, and probably will be ready for service this year. It is being built at Avondale Marine Ways, Inc., and will go into operation for the California Co.

The elevated-deck-type unit is designed for drilling in waters up to 100 ft. The barge proper will be slightly over 217 ft. long, with a 100-ft. beam.

A pontoon, or mat, will nestle under the main hull in floating state. On location, the pontoon will be lowered to the subsea surface by four hydraulically operated 12-ft.-diameter columns, which also will raise the hull above the water line for drilling.

Once the pontoon is on bottom, 11-ft.-diameter spuds inside the columns will be shoved hydraulically down through the pontoon and into the ocean floor.

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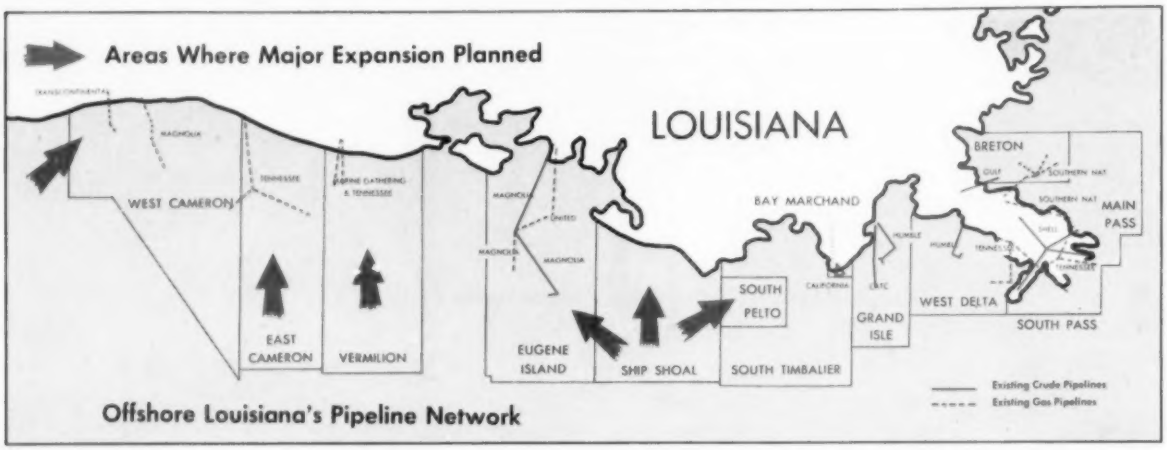

PIPELINE NETWORK in the Gulf area continues growing to handle the large reserves of gas and crude found offshore, and . . .

Some Big Pipelines Are Planned

The offshore pipeline network is rudimentary when compared with the vast complex onshore. But it is growing, and should be less sketchy by next year.

There has been a relatively large expansion of offshore pipeline systems in the past two years, particularly in gas or combination gas-crude lines.

The 1959 building program is still pretty much up in the air. For one thing, companies planning lines are still changing routings, specifications and so forth, to incorporate later offshore developments.

Construction plans also depend to a very large extent on government actions concerning the offshore, and on FPC gas-price decisions.

But several projects are in the works that will add substantially to the offshore transportation picture—again, especially in the gas phase.

Transcontinental Gas Pipe Line Corp. is working out details for what probably will be the year's most extensive program.

The details aren't complete yet, but one of Transco's projects would extend a gas line out from the vicinity of Mosquito Bay (near the Terrebonne Parish coast).

The complete system would tap reserves in the Eugene Island, Ship Shoal, and South Pelto Areas. There would be 16-in., 14-in., and 8-in. lines involved, with two parallel 16-in. lines on part of the system.

The company also has some construction plans for the West Cameron and High Island areas. But here again, engineering designs, requirements, and routings still are under discussion and study.

Transco recently completed work on a Vermilion Area project, and may lay more lines in the vicinity.

Several other projects also are scheduled, at least tentatively.

Tennessee Gas Transmission Co. has applied for FPC permission to add lines in the East Cameron and Vermilion Areas.

Trunkline Gas Co. plans to tie in to Vermilion Blocks 14, 15, and 26, and East Cameron Block 67, with the expectation of tapping more than 50-million cu. ft. of gas daily.

Columbia Gulf Transmission Co., newly-organized subsidiary of Columbia Gas System, also is slated to expand in the East Cameron Area.

There will be a considerable number of lines added to existing gathering systems—both within fields and between closely adjacent fields.

These lines, for the most part, will be of the 6-in. and 4-in. type, laid for relatively short distances to connect up new production.

While operators so far evidently believe barging of crude to shore is more economic than laying pipelines, this attitude is certain to change with increasing offshore output.

To some extent, crude is already moving ashore through combination gas-crude lines, and there evidently will be more of this. But where economics are right, crude lines definitely will be built.

The latest big crude-line project is just being completed—Shell Pipeline Co.'s Delta pipeline will take oil from the Mississippi Delta to the big Norco (La.) refinery. Strictly speaking, the 120-mi. line isn't "offshore." Its course runs across the Louisiana marshlands, for the most part. But it will be pulling crude from some large offshore reservoirs, including the prolific South Pass Block 24 field, which contains reserves estimated at around 300-million bbl. and is Louisiana's largest field.

Initially, the line will transport about 70,000 b/d, with a capacity of about 90,000 b/d. The line also will be linked with Gulf Oil Corp.'s Ostrica terminal and Texaco's Pilottown storage terminal. The first 35 mi. of the line is 16-in., the remainder 20-in.

But the big factor common to all the crude systems built

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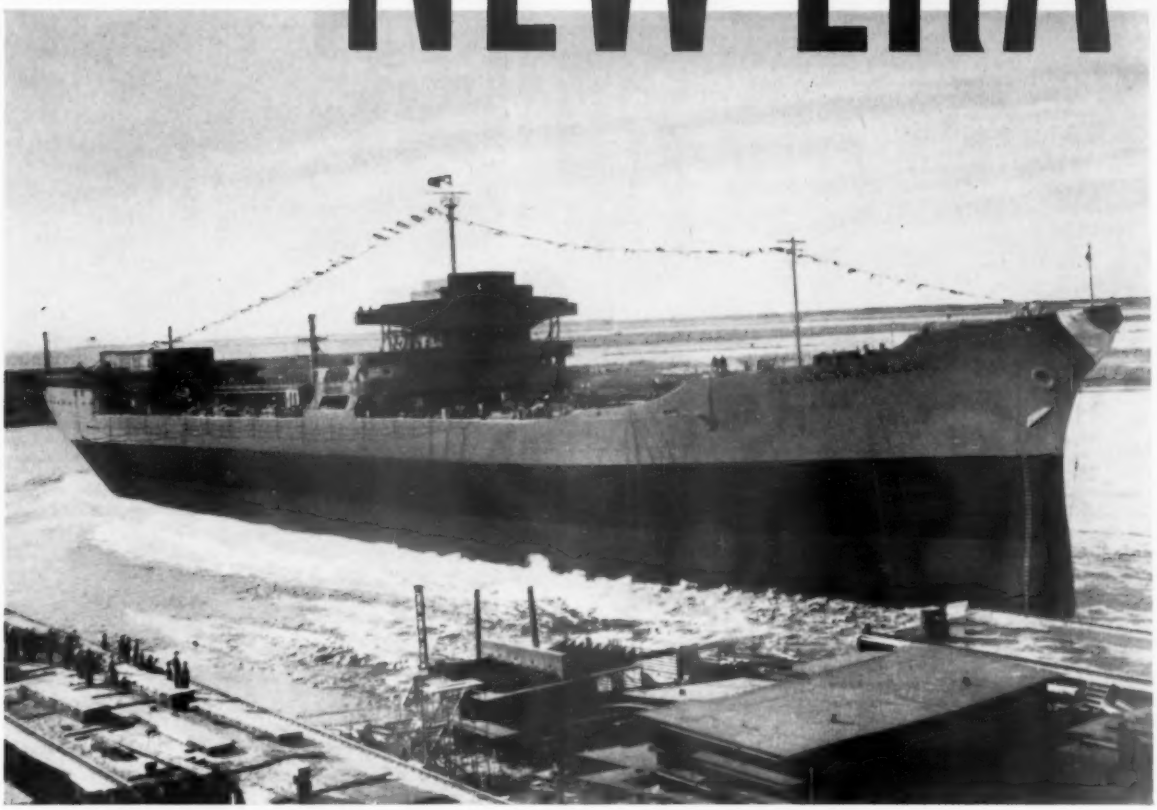
Super-Tanker for a

NEW ERA



SS EAGLE TRAVELER is one of four super-tankers launched at Ingalls' Pascagoula yards in 1958, each capable of circling the world with only one stop for refueling.

Built for United Tanker Subsidiaries, the 665-foot *Eagle Traveler* will move 250,000 barrels of bulk petroleum over world sea lanes at a speed of 17 knots.

Ingalls pioneered the all-welded construction of ocean-going vessels including tankers and has made many contributions to the design and development of tanker-barges, off shore drilling rigs and service vessels which have helped make this the "Era of Petroleum Power."

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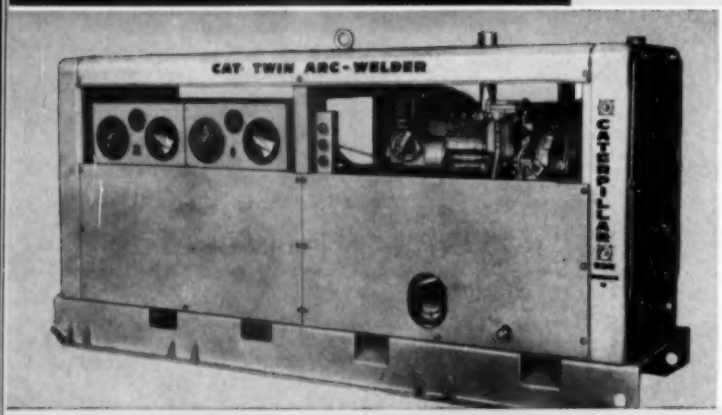
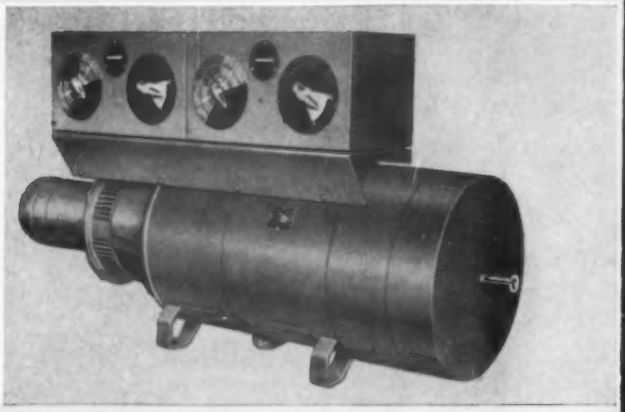
engine power
BY CATERPILLAR

A new twin arc-welder that costs less, weighs less, takes up less space



Powered by the Cat D311 (Series H) Engine the new, compact Twin Arc-Welder has ample power and capacity to handle two 300-amp. arcs. It costs less and has faster recovery. Operators know it has hot arc on contact with no waiting for the machine to come up to speed. Operation is smoothly uniform and control is completely automatic.



Reliable Cat power drives twin Lincoln welding generators and features two independent control panels permitting different welding operations at the same time. The single unit, two-arc package is only 35 inches wide to permit placing two side by side on the average truck bed—enough power to supply four men.

By powering this new electric arc welder with a D311 (Series H) Engine, Caterpillar has improved on the performance of the D315 powered welder. It's 1,300 pounds lighter, 20 inches shorter, 3½ inches lower and 4½ inches narrower—a lighter, more compact, more transportable unit that can meet the most exacting pipeline schedules and the toughest terrain. Big news, too, is its lower purchase price.

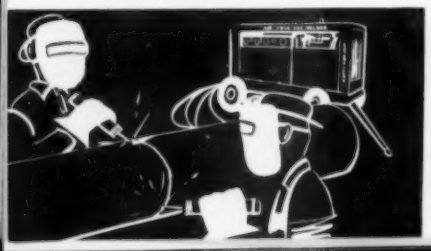
The new Cat Twin Arc-Welder combines two welding generators in one frame with dependable Caterpillar 4-cycle power. Dimensions above are for the skid base arrangement with base type fuel tank. Also available is four-wheel, heavy-duty running gear with springs and parking brake.

THESE FEATURES MEAN PROFITABLE WELDING FOR YOU:

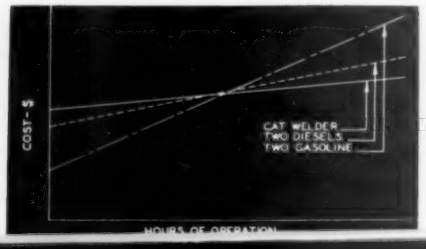
1. Simultaneous operation of two arcs with the two 300-amp. Lincoln welding generators powered by the Cat D311.
2. Independent generator controls allow welding at different voltages and amperages or polarity at the same time.
3. 600 amp. for automatic welding available by a simple connection change.
4. The Cat D311 Diesel can use a wide range of readily available fuels including low-cost grades.
5. Ample power for four welders (two Twin Arc-Welders) easily transported on one small truck.
6. Large capacity 3 KW exciter provides extra power for auxiliary tools.

Engine Division, Caterpillar Tractor Co., Peoria, Ill., U.S.A. Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

NO FREEZING even when two rods work at capacity. Cat Diesels have the "lugability" to keep current up.



LOWER OPERATING INVESTMENT over life of a welding unit is important. A Twin Arc-Welder saves money over other makes.



CAT PARTS AVAILABILITY is in line with superior dealer service. More than 400 domestic Cat parts stores.

to date is the availability of large reserves that can be produced and transported at a rate that will permit a reasonable payout period.

Most offshore pipeline experts believe the day is coming when several larger offshore operators will join to lay a combined offshore crude pipeline.

Not too long ago, a group of the larger operators did discuss such a possibility, and even began specific formal talks about it. But nothing has happened since. It is known that there were quite a few points on which agreement couldn't be reached at that time.

The proposed line would have curved across the West Delta, Grand Isle, and South Timbalier Areas, and perhaps on to the Ship Shoal Area.

One pipeliner conversant with the proposal says, flatly, "It would have paid for itself, without any doubt"—even though he estimates total cost at over $100-million.

Both during and after the intercompany talks about the project, others in the industry suggested alternative methods of arranging the construction. The talk isn't dead yet, though the proposal apparently has been dropped for the time being.

EXPERIMENTAL "WIND TURBINE" on a CATC platform is being evaluated as a power source for remote control systems, as . . .

Complete Offshore Automation Nears

Although offshore operators have been working actively for years toward automatic offshore production and custody transfer, no complete system of this type is yet in operation.

The offshore is considered by many as an ideal area for lease automatic custody transfer, because of the isolated nature of its production. Complete automation is a virtual certainty, eventually.

Portions of such systems already exist, but the rate of development has been cautious. There are signs that it is quickening.

One of the first three applications filed with Louisiana authorities for approval of ACT systems involves offshore crude.

The application was submitted by Humble Oil & Refining Co. for its West Delta Block 30 field, with Interstate Oil Pipelines Co. as purchaser.

The system will be equipped with bs&w monitors and samplers, and production will be measured automatically by positive-displacement meters.

Now on the verge of detailed planning is an extensive automation program by which the CATC group's production as far out to sea as 35 to 40 mi. would be remotely controlled.

The plans are still tenuous at this stage, however. It hasn't been decided, for instance, whether it will be a platform-by-platform proposition, or whether design and installation of the equipment will be undertaken as a single large project.

Neither the exact nature of the control equipment nor the exact number of production functions that will be controlled has been determined. Discussions to settle

continued ▸

these points are under way, but no decision is expected for some time.

A communications network, a necessary prerequisite to the system, has already been installed and is undergoing final testing.

This microwave network has been installed on platforms and at shore installations in a giant triangle that extends from Grand Isle out to West Delta Block 30 field, in to Venice, and back to Grand Isle.

This network, designed and built to function as a data-gathering system, was conceived from the beginning as part of an eventual integrated automation system.

This communications link-up is functioning now, with final adjustments being made. It will require only the installation of equipment to control the wells for the system to become completely automated.

Up to now, the wind has caused only trouble for offshore operations. But CATC is experimenting with a method for harnessing it to power the communications network now, and the entire automation system eventually (PW—Jan.30'59,p29).

Key factor in the system is a "wind power plant" installed by Automatic Power, Inc., of Houston, on a West Delta Block 47-A platform.

The plant is a three-bladed steel propeller, 33 ft. in diameter, coupled to a 6-kw. generator and a speed-increasing transmission. It is mounted on a 40-ft.-high tripod made of 10-in. pipe. The plant is connected to a 120-volt bank of batteries. The propeller automatically "feathers" out if winds become too strong.

A West German product, the system has been in use for some time in Europe, providing power for navigational aids, communications, irrigation, and the like.

If the device lives up to expectations, it could be an excellent power source for remote-control offshore production systems.

At the moment, CATC's wind plant is powering platform safety aids.

The Coast Guard requires each platform to have navigational lights and continuously-sounding foghorns.

A diesel-engine-and-generator assembly is the orthodox means of supplying electric power for these aids. CATC has been using the wind plant on the platform since last October. The group wanted to see if the plant could furnish a reliable amount of power for this purpose, and also to see if there would be sufficient "extra" power for eventual use on the planned automation system.

So far, the results appear quite favorable. The wind-driven generator supplied 97.8% of the power needed during an 11-week period.

A chart of its performance shows that the plant developed more than 2,545 kwh. between Oct. 14 and Dec. 29, with wind velocity averaging about 15 mph.

A standby diesel engine and generator were required to supply the 2.2% of the power needed during that period, when, for one reason or another, the wind plant wasn't functioning.

Highly important is the fact that the plant's output actually was about 1,500 watts more than needed for the foghorn and navigational lights, says CATC.

This "extra" power was channeled to such uses as platform lighting. But it could be used for the automation system. If it lives up to expectations, the wind plant will furnish about 95% of the electricity needed during the year.

Meanwhile, the economics of using wind power for navigational aids alone make sense, if the installation proves feasible.

To begin with, installation of the foghorn assembly alone runs to about $15,000 on a single platform.

Automatic Power, which installs and maintains much of this type of equipment offshore, estimates that it requires about $850 per month for maintenance of the foghorn, with additional costs for parts and maintenance running the total up to $900-$1,000 per month.

And an offshore operator pays an annual bill of from $700-$800 to keep navigational lights burning.

A diesel-generator power system requires an inspection about every 15 days, at a cost of around $400 per visit (included in the maintenance expense).

The real problem and expense is the cost of marine transportation to the remote offshore sites. It can, conceivably, cost an operator up to several hundred dollars just to change a defective, but vital, 10¢ part.

"With a wind turbine," says Automatic Power, "there are fewer things to go wrong." The company estimates that a wind plant could run unattended and uninspected for two to three months at a stretch.

Furthermore, because there are no fuel requirements, the company says, the plant can be serviced by helicopter, cutting further into the operating costs.

The foghorn being operated by the wind plant is something of an innovation itself.

Also a German product, the foghorn is an electronic type with a transistor inverter that converts the generator's DC power into AC. As a result, the power required for the foghorn is reduced from the usual 3,000 watts to only 80 watts.

Wind-generated power, however, probably wouldn't be sufficient to operate heavy production equipment, such as pumps, the experts feel.

Automatic Power frankly is interested in developing use of the wind plant for automatic control systems.

The company says there would be more than enough electricity generated to handle the opening and closing of valves, telemetering, and communications—the guts of an automatic production system.

One wind turbine of the type that's being tested on Platform 47-A can produce "in excess of 10,000 kwh. per year—enough to handle the electrical needs of three average homes," says Automatic Power.

Automatic facilities are not only more efficient in most cases—they're a virtual necessity for some of the more remote offshore installations.

One of the highest costs of operating an offshore property is marine transportation. This is becoming a bigger problem as operators move farther out to sea. With semi-attended or unattended installations, however, such cost is reduced to a minimum.

Savings in operating costs also tend to bring with them reduction in costs of other, intangible items, as well as to minimize personnel problems.

continued ▶

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SIE

TILTED BARGE—Trans-Gulf's No. 10—sank shortly after this picture was taken last month. It's another reason why . . .

Insurance Rates Are Going Up

Safety has never been a neglected phase of offshore operations. And though operators are bearing down on it harder than ever, they can look for some unpleasant insurance news soon. The premiums for "cost of control" of fires are going up.

The offshore industry has passed the insurance crisis it faced last year, when London underwriters were threatening to dissolve the market entirely (PW—Feb.21'58,p67). But, over-all, insurance rates are on the order of 50% higher than at this time last year.

There are several different categories of coverage—damage to equipment, wreckage removal, "cost of control," and so on. The "cost of control" clause includes all expenses necessary to regain control of a well that has blown out or caught fire. It does not include the cost of restoring the well to production. Because of offshore platform fires during the past few years—such as the recent CATC holocaust—underwriters have paid out some $4-million for this type of risk alone.

With a much lower incidence of drilling equipment in action, costs of most types of insurance have stabilized fairly well, over-all. But, underwriters' U. S. representatives say, premiums for "cost of control" insurance probably "will go 'way up."

The "cost of control" risk suddenly has emerged as the biggest expense item in offshore fires.

One insurance source estimates that in the CATC fire alone, this item probably would account for between $1½-million and $2-million of the total insured losses—which are expected to be in the neighborhood of $10-million.

One of the four CATC companies estimates its total insured loss at almost $3-million. For this one company, the "cost of "control" item runs to almost $750,000—more than the total for any other two of the risk-covered categories.

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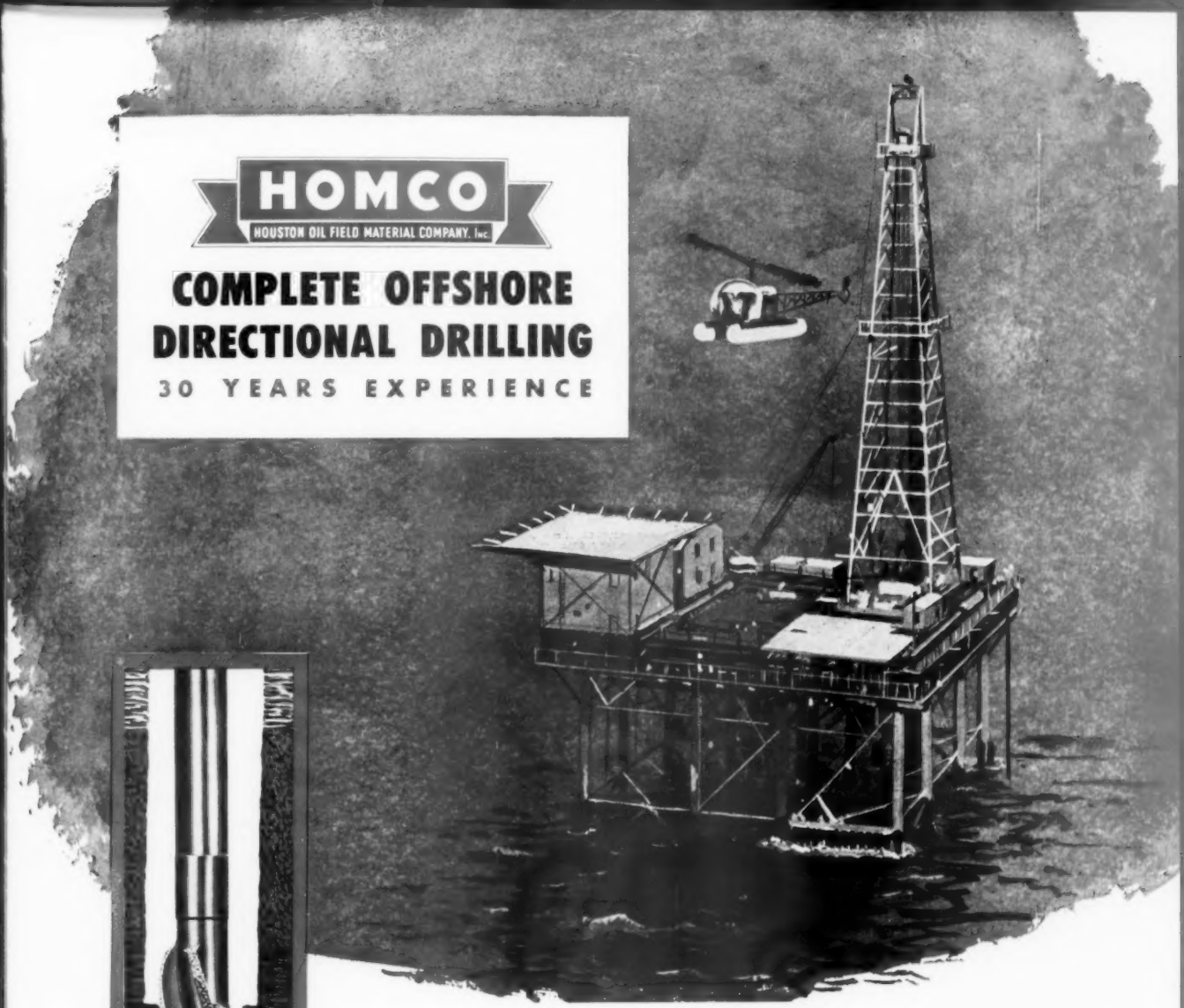

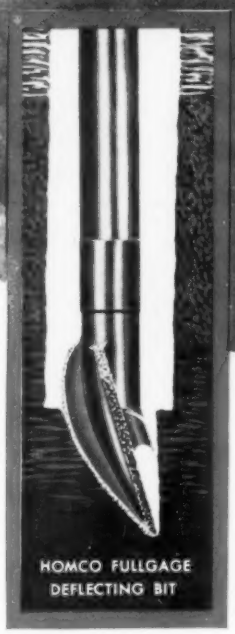

HOMCO FULLGAGE DEFLECTING BIT

HOMCO has developed special tools to reduce Directional Drilling time on Tidelands operations. The HOMCO Fullgage Deflecting Bit saves several drilling days when used to directionally drill surface holes. Call the nearest HOMCO Directional office and learn how this tool can put a directional hole on course with one round trip of the drill string. This tool saves enough rig time to more than pay for the directional costs. The HOMCO Fullgage Deflecting Bit is "exclusive" with HOMCO.

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THE OIL INDUSTRY'S MOST COMPLETE SERVICE

The lessons taught by the offshore blazes haven't been lost on the operators. So, in spite of the fact that higher premiums probably are in the offing, indications are the operators will seek more extensive "cost of control" coverage.

At least one active offshore company—which is probably typical—is dickering for "cost of control" insurance of as much as $1-million for each hole while it is being drilled and $500,000 for each producing well on a platform, up to a maximum coverage under this one clause of $5-million per platform.

However costly such fires may be to underwriters, the oil companies usually suffer a harder financial blow.

There is, for instance, no reimbursement for the irreplaceable production that has gone up in fire and smoke. Nor is there any recompense for the cost of remedial work on the well to get it back into production.

That—and the cost in lives—is why offshore operators are so safety-conscious.

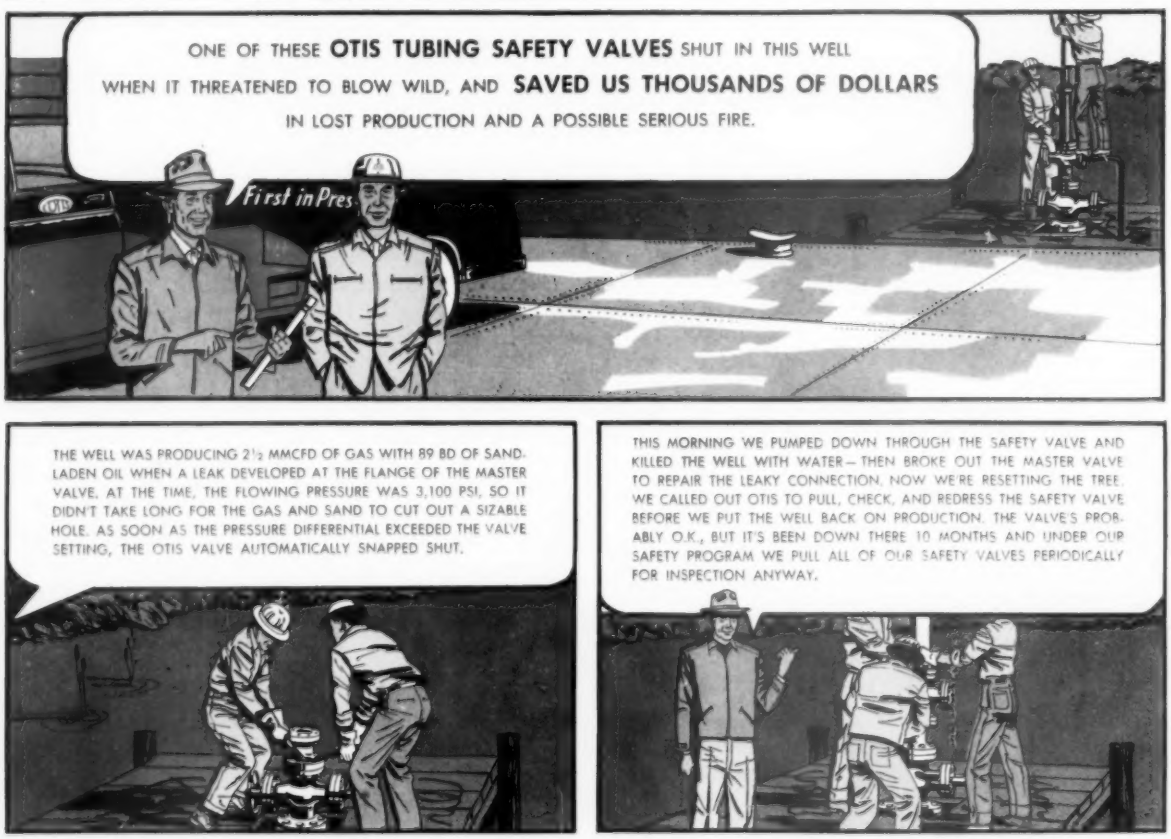
The CATC fire apparently won't cause any dramatic, drastic changes in standard safety equipment, procedures, or precautions. The typical view among offshore operators seems to be that this, as well as the earlier offshore fires, have only "accented what we knew to be the facts, and reinforced the value of our established programs."

An experienced offshore authority says, "You could load down an offshore platform with so much safety equipment that you couldn't operate—and you still couldn't do anything about the human factor. All the safety precautions in the world can't prevent a man from goofing."

Says another official: "All the best-laid plans and best equipment aren't worth a tinker's dam if the plans are ignored or violated, or if the equipment is misused by operating personnel."

Operators aren't complacent, however; they recognize

CATC PLATFORM FIRE resulted in losses estimated at around $10-million, not counting substantial losses in production.


ONE OF THESE OTIS TUBING SAFETY VALVES SHUT IN THIS WELL
WHEN IT THREATENED TO BLOW WILD, AND SAVED US THOUSANDS OF DOLLARS
IN LOST PRODUCTION AND A POSSIBLE SERIOUS FIRE.
First in Pres
THE WELL WAS PRODUCING 2½ MMCFD OF GAS WITH 89 BD OF SAND-LADEN OIL WHEN A LEAK DEVELOPED AT THE FLANGE OF THE MASTER VALVE. AT THE TIME, THE FLOWING PRESSURE WAS 3,100 PSI, SO IT DIDN'T TAKE LONG FOR THE GAS AND SAND TO CUT OUT A SIZABLE HOLE. AS SOON AS THE PRESSURE DIFFERENTIAL EXCEEDED THE VALVE SETTING, THE OTIS VALVE AUTOMATICALLY SNAPPED SHUT.
THIS MORNING WE PUMPED DOWN THROUGH THE SAFETY VALVE AND KILLED THE WELL WITH WATER—THEN BROKE OUT THE MASTER VALVE TO REPAIR THE LEAKY CONNECTION. NOW WE'RE RESETTING THE TREE. WE CALLED OUT OTIS TO PULL, CHECK, AND REDRESS THE SAFETY VALVE BEFORE WE PUT THE WELL BACK ON PRODUCTION. THE VALVE'S PROBABLY O.K., BUT IT'S BEEN DOWN THERE 10 MONTHS AND UNDER OUR SAFETY PROGRAM WE PULL ALL OF OUR SAFETY VALVES PERIODICALLY FOR INSPECTION ANYWAY.

the constant hazards all too well. But they are surer than ever that equipment and rules are sound.

While offshore fires have tended to confirm the soundness of present offshore safety measures, rather than condemn them, a few changes may result.

There already has been a tightening of procedures, and a greater insistence on observance of rules, accompanied by a noticeable improvement in employee cooperation.

The trend toward an increasing number of multiple completions from a single platform may slow up a bit. And there may be some concentrated attention toward reducing even further the hazards on fixed platforms.

The trouble here, as one insurance representative notes, is that "there is little that can be done from a marine safety standpoint on a fixed platform that isn't already being done."

Many of the safety features for tender and mobile-barge operations are based on both insurance and U.S. Coast Guard findings and recommendations.

The insurance companies, beginning with the early days of offshore drilling, have been particularly concerned with mobiles, because they were considered "tricky" to handle.

This emphasis has paid off in far fewer accidents in recent years, although it hasn't stopped such happenings entirely.

Just last month, the Trans-Gulf Offshore Drilling, Inc., No. 10, a mobile being operated at the time by Reading & Bates Drilling Co. on State Lease 1423, South Timbalier Bay, was damaged when it listed accidentally.

The mobile was supported during drilling by a dozen 4-ft.-diameter spuds, 212 ft. long, which were sunk into the ocean bottom. According to surveyors' reports, the formation gave way, causing the legs to drop and kink on one side, and the hull to list.

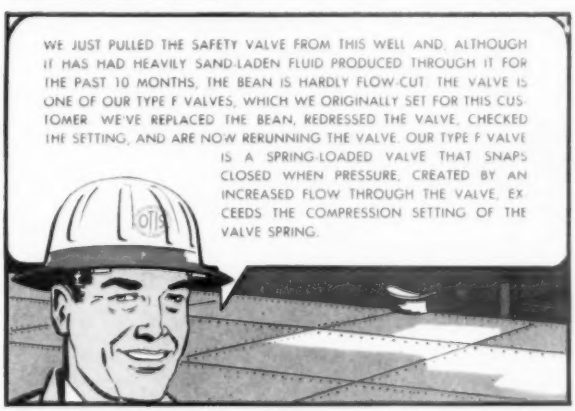
Trans-Gulf reports, however, that at least 90% of the deck equipment—drawworks, substructure, and the like—were salvaged before the hull sank beneath the water, to settle underwater, in an upright position. The company says there is a good chance that the hull can be resealed and floated out for subsequent refitting.

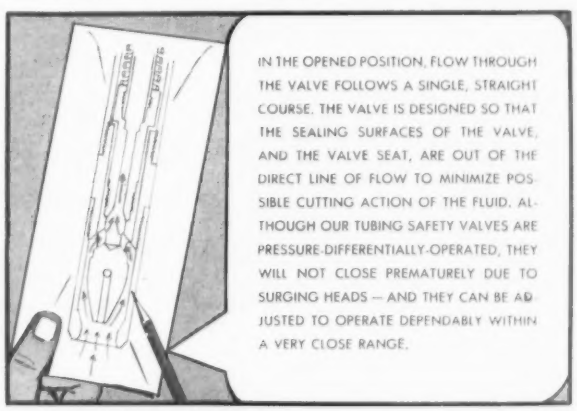
One factor in connection with this accident supports the soundness of present safety procedures: None of the 38 men aboard at the time were seriously injured, according to Trans-Gulf.

While the Coast Guard has put into effect several regulations dealing with platforms, most of the safety accent has been on the effects of wind and wave action, and on protection of navigation.

While the problem has been studied right along, an intensification of these efforts can be expected because of the increasing insurance rates.

continued ▸


WE JUST PULLED THE SAFETY VALVE FROM THIS WELL AND, ALTHOUGH IT HAS HAD HEAVILY SAND-LADEN FLUID PRODUCED THROUGH IT FOR THE PAST 10 MONTHS, THE BEAN IS HARDLY FLOW-CUT. THE VALVE IS ONE OF OUR TYPE F VALVES, WHICH WE ORIGINALLY SET FOR THIS CUSTOMER. WE'VE REPLACED THE BEAN, REDRESSED THE VALVE, CHECKED THE SETTING, AND ARE NOW RERUNNING THE VALVE. OUR TYPE F VALVE IS A SPRING-LOADED VALVE THAT SNAPS CLOSED WHEN PRESSURE, CREATED BY AN INCREASED FLOW THROUGH THE VALVE, EXCEEDS THE COMPRESSION SETTING OF THE VALVE SPRING.
OTIS


IN THE OPENED POSITION, FLOW THROUGH THE VALVE FOLLOWS A SINGLE, STRAIGHT COURSE. THE VALVE IS DESIGNED SO THAT THE SEALING SURFACES OF THE VALVE, AND THE VALVE SEAT, ARE OUT OF THE DIRECT LINE OF FLOW TO MINIMIZE POSSIBLE CUTTING ACTION OF THE FLUID. ALTHOUGH OUR TUBING SAFETY VALVES ARE PRESSURE-DIFFERENTIALLY-OPERATED, THEY WILL NOT CLOSE PREMATURELY DUE TO SURGING HEADS — AND THEY CAN BE ADJUSTED TO OPERATE DEPENDABLY WITHIN A VERY CLOSE RANGE.

OTIS TUBING SAFETY VALVES, OR "STORM CHOKES" AS THEY'VE BEEN CALLED FOR YEARS, CAN BE RUN IN AND LANDED UNDER PRESSURE IN OTIS NIPPLES MADE UP IN THE TUBING STRING, OR SET IN THE TUBING ON SLIPS FOR WELLS WITHOUT NIPPLES. OTIS TUBING SAFETY VALVES, SET BY OTIS CREWS, HAVE NEVER FAILED TO SHUT IN A BLOWOUT. CALL THE OTIS OFFICE NEAREST YOU AND TALK TO THEM ABOUT INSTALLING TUBING SAFETY VALVES — BEFORE YOU NEED THEM. A SMALL INVESTMENT IN AN OTIS STORM CHOKE TODAY CAN PROTECT YOU AGAINST A POSSIBLE FIRE OR WILD WELL TOMORROW. PLAY IT SAFE WITH A SAFETY PROGRAM — CALL OTIS!
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SPECIAL REPORT

OFFSHORE OIL

An offshore safety program is far more complicated and expensive than its onshore counterpart.

It costs, for instance, around $40,000 just to equip a single offshore platform with the basic safety equipment—foghorns, navigational safety lights, and so on.

The cost can be substantially higher, depending on the extent of automatic fire control and related equipment. Considering, however, that this equipment protects an investment of $2-million or more for physical plant alone, the cost isn't out of line—to say nothing about the possible loss in lives and petroleum reserves.

Since an offshore location is an isolated one, safety equipment and procedures are necessarily far more complex than onshore.

Fire prevention and control is, by far, the most essential element in offshore safety programs.

They are fairly standardized among offshore operators, with only relatively minor differences.

These programs include such devices as water and foam pumps; safety-engineered heater-treaters, which are located when possible at least 150 ft. from the producing platform itself; automatic shutdown devices on engines and generators; and jettisonable tanks to hold the emergency helicopter fuel.

The human element isn't neglected, no matter how elaborate and modern the equipment may be.

Keeping personnel alert and aware of safety precautions admittedly is one of the biggest tasks any company faces.

Like other offshore operators, Sinclair Oil & Gas Co., operator for an offshore group which includes El Paso Natural Gas Co., Sohio Petroleum Co., and Peoples Production Co., follows a consistent and continuous pattern of "endless repetition" in its safety education, drills, and the like.

"We want to have everybody safety- and fire-control-conscious all the time," says a company official. The periodic educational meetings include not only all Sinclair offshore personnel, but also contractor personnel, boat and helicopter crews, and others involved in the offshore activity.

All work done offshore, except for the most routine tasks, must be cleared in advance with the nearest operating headquarters to minimize the risk of unsafe procedures.

Reprints Available

Reprints of this report are being prepared and will be available in March. Single copies will be sent to Petroleum Week subscribers on request without charge. Additional copies will be billed at the following rates: 1-10 copies, 50¢ each; 11-100, 40¢ each; 101-1,000, 30¢ each; over 1,000, 20¢ each. Address orders to:

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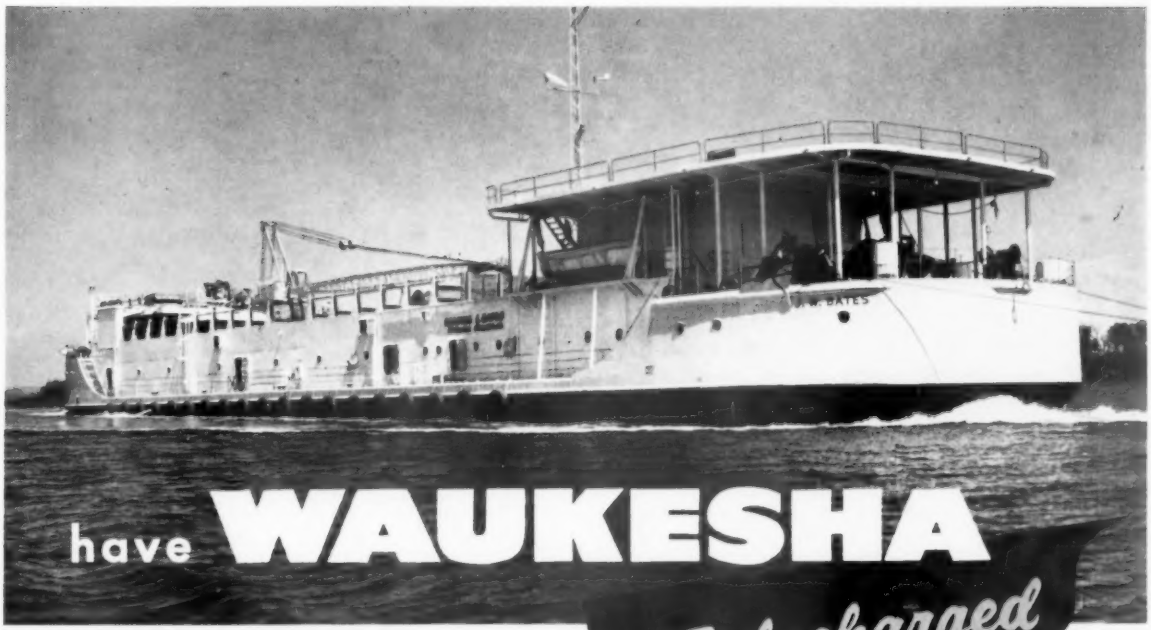
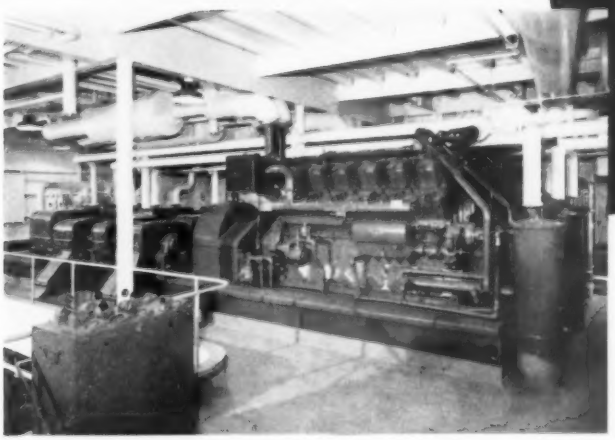
READING & BATES Offshore Drilling Company

OFFSHORE DRILLING TENDERS



have **WAUKESHA** *Turbocharged* **DIESELS**



(above) Drilling tender **J. W. Bates** uses (left) three WAUKESHA Model VLRDBS Turbo-Supercharged DIESELS—12-cylinder, 60-degree vee, four cycle, 8½ x 8½-inch bore and stroke, 5788 cu. in. displacement, with counterbalanced crankshafts. Send for Bulletin 1663.

Reading & Bates Offshore Drilling Co., of New Orleans and Tulsa, have two drilling tenders, the *J. W. Bates* and *George M. Reading*—260′ long; 54′ wide; molded depth, at sides, 16′3″. The tenders operate offshore, one in the Gulf of Mexico, the other in the Gulf of Persia, at a distance of 40-75 miles. Both use Waukesha V-12 Turbocharged Diesels.

Pictured above are the tender *J. W. Bates;* and its three VLRDBS Waukesha V-12 Turbocharged Diesels driving the National Supply Company's largest mud pumps (No. 2-G-1000) through a three-section National gyrol compound with two-speed drive.

An official of Reading & Bates says, "The Waukesha V-12 Turbocharged Diesels, through their dependability and economical operation have earned the confidence and approval not only of the drilling crew personnel but of the entire Reading & Bates organization."

416

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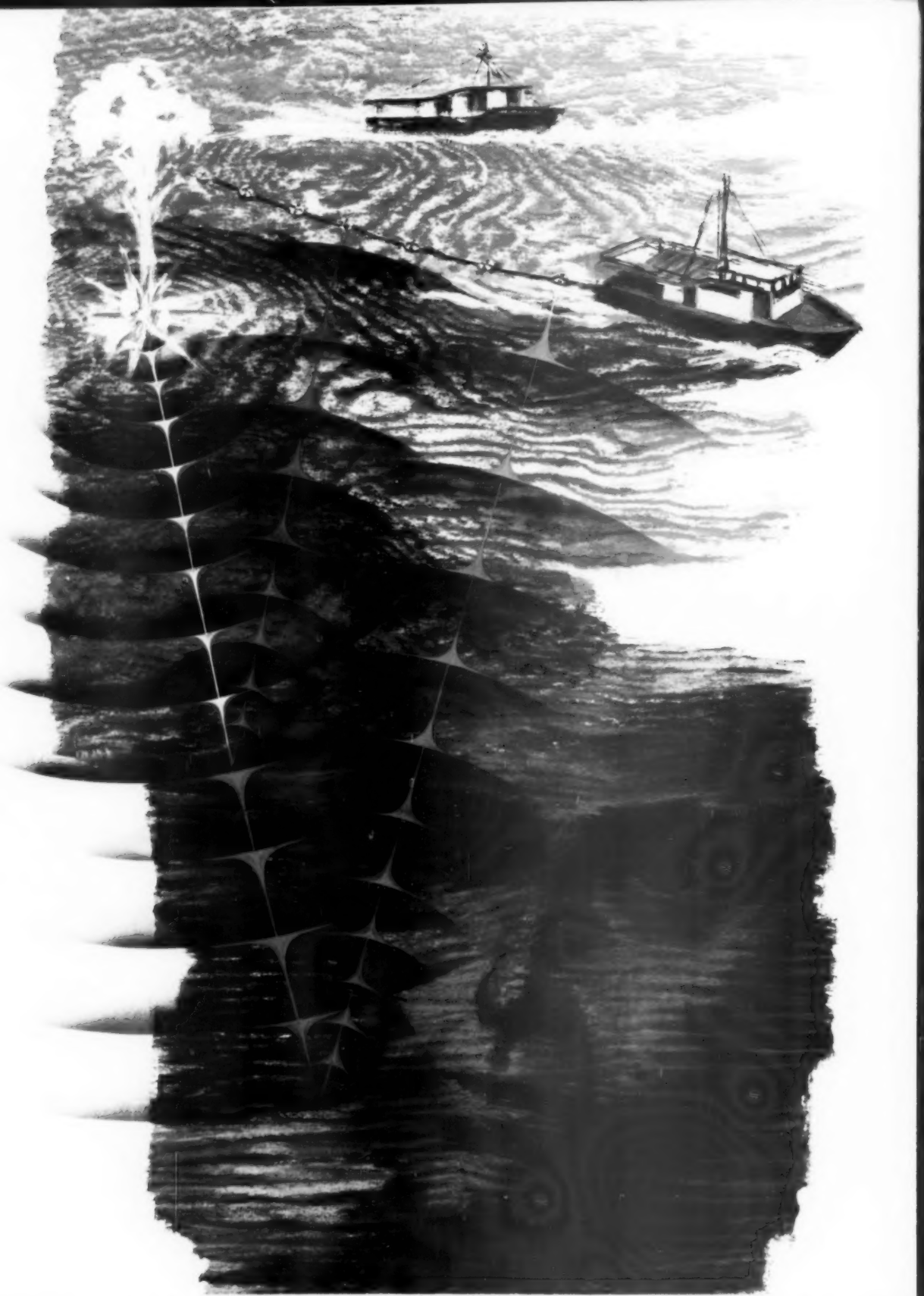

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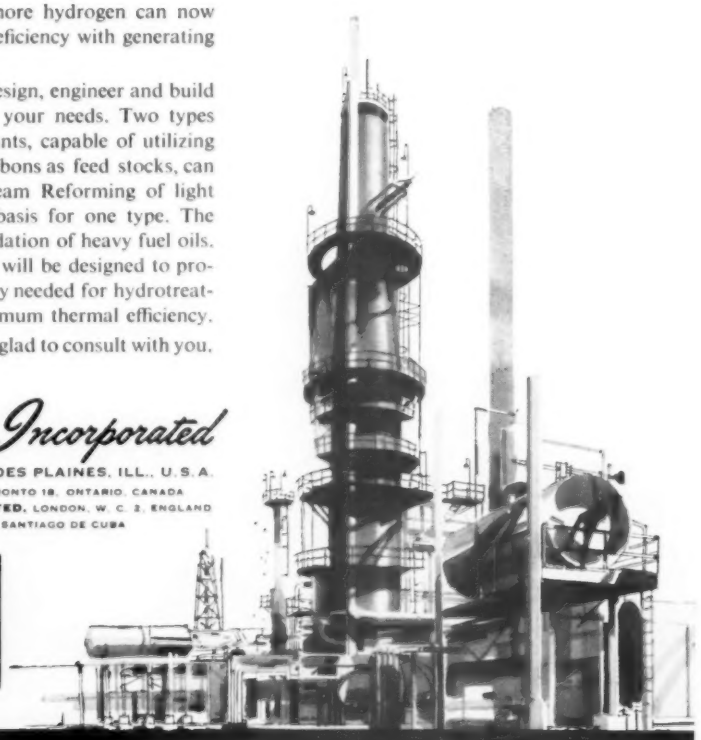

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Economy, 'Automation' In One Plant

- **Sunray Mid-Continent's new gas processing plant in Jackson County, Tex., will run unattended all night long on relatively simple and economical control equipment.**
- **The plant will also use a minimum of standby pumps and compressors, emphasizing preventive maintenance instead.**
- **And there will be no steam system. Hot oil, Sunray feels, will heat cheaper.**

The evolution of natural gas field processing presses on with the building of Sunray Mid-Continent Oil Co.'s highly automatic $600,000 plant in Jackson County, Texas Gulf Coast.

The Carancahua Bay gas plant, as Sunray has officially dubbed it, is in its final stages of construction, with all equipment in place except its three fractionating columns.

The columns are scheduled to go up this month, and Sunray feels that the plant, which is to process gas from the nearby Appling and Olivia fields, will be in operation by mid-March.

When it does come on stream, the Carancahua Bay plant (16 mi. northeast of Port Lavaca) will be something special, to Sunray's way of thinking.

The plant will be able to run unattended all night long.

Only four men will be needed to run the plant on a regular work schedule—thanks to its unattended nighttime operation.

Personnel will include a plant foreman, two operator-repairmen, and one utility man. Work schedules, Sunray says, will be arranged to provide one man on duty during weekends. These daytime personnel will be employed for repair and maintenance problems that are expected to arise from time to time.

There's little possibility that anything will go wrong during the unattended periods. But because the slight possibility of failure remains, Sunray is considering an unusual alarm system.

The system would take advantage of the fact that the local telephone system still uses a central operator. If some failure did develop, the plant alarm system would signal the night switchboard operator.

She, in turn, would ring a plant operator at home, and he would head for the plant.

Says a Sunray spokesman, "This will give us substantially the same downtime as if the plant were conventionally manned."

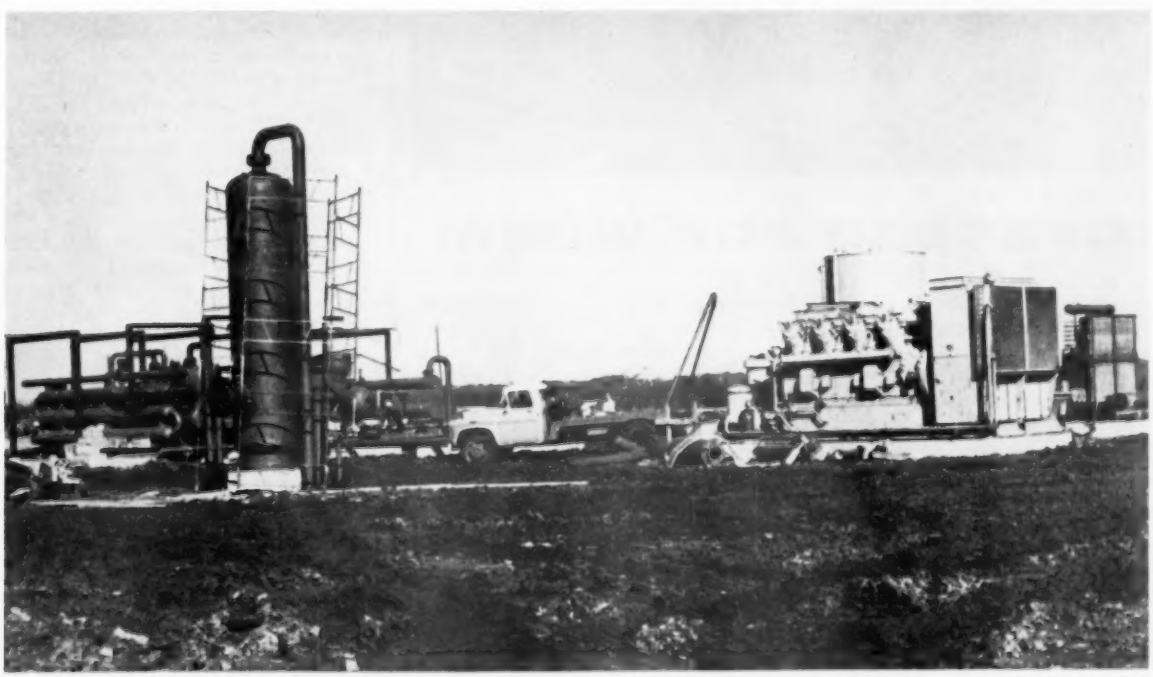
Automatic control equipment for this unattended operation is relatively simple and cheap.

Sunray says that the controls at Carancahua Bay will be of the simplest, most basic designs.

There will be no extensive use of components or computers.

Although the cost of the entire plant is expected to reach $600,000, Sunray estimates that "less than 2% of this figure will be involved in making unattended operation feasible."

A Sunray official explains this by pointing out that the gas products in-



NEW AUTOMATIC PLANT will be ready for unattended operation for Sunray Mid-Continent by mid-March.

dustry has long been highly automated, and that unattended nighttime operation is only one more step in that direction.

But unattended nighttime operation won't be the only unusual wrinkle at the plant. Standby pumps and compressors, for instance, will be at a minimum.

"Sunray's previous experience," L. G. Rodgers, general manager of the company's gas division, told PETROLEUM WEEK, has proved that only a minor amount of downtime results from elimination of such spare equipment.

"We emphasize planned maintenance—that is, maintenance prior to indicated failure of any given part."

Rodgers offers this example:

"Suppose the gas company's line was operating at reduced rate during a period of low demand. We would take that opportunity to work over some piece of operational equipment, even though no malfunction was evident."

Also, the plant will have no steam system.

Sunray feels that the plant will operate more economically using hot oil for all heating services. Sunray notes that elimination of the steam system gets rid of feed-water treating problems; and it reduces plant fuel consumption, too.

Despite these "offbeat" features, the plant will use the standard refrigeration oil-absorption process.

It will initially process about 30-million cu. ft. of gas a day, although maximum processing capacity will be close to 40-million cf/d.

Total liquid hydrocarbon yield will be 27,000 gal. a day, with recovery of about 80% of the propane in the gas stream and essentially all of the stream's butane and heavier hydrocarbons.

Each operating day the plant will make about 12,000 gal. of propane; 5,000 gal. of isobutane; 4,000 gal. of normal butane; and 6,000 gal. of natural gasoline.

Tuloma Builders, of Tulsa, worked up the plant's process design, while The Refinery Engineering Co. handled its mechanical engineering design.

Field construction is being carried out by Oil States Engineering Co., of Tulsa.

National Tank Co. was called in to fabricate and skid-mount the process equipment at its Sand Springs (Okla.) shops.

Sunray feels that the skid-mounting made installation easier and cut construction labor costs.

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A look at today . . . and a glimpse

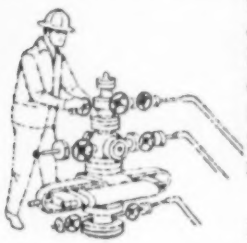
Armour Chemicals for Petroleum Production

Where they work today

Numerous applications for Armour Chemicals exist from the time a well is "spudded in" to the time crude oil is delivered to the refinery. Typically, these chemicals are used in mud drilling, give outstanding corrosion and bacterial protection in producing wells or fields under water flood, and insure corrosion protection in pipelines and terminal storage facilities.

In producing oil wells

Salts made from the Duomeens® (Armour's trade name for diamines), have gained wide acceptance in the petroleum industry as down-the-hole corrosion inhibitors. These oil soluble, cationic, hydrophobic salts form a tough molecular film on steel and markedly reduce corrosion.



Corrosion rates of 0.0014 IPY at a cost of 9 mils/bbl. are not unusual (based on 2 qts./100 bbls. producing fluid). Some of the salts made from Armour's Duomeens are shown at the bottom of the page.

For complete technical data, check "A" in the coupon.

For injection water treatment

Effective corrosion and bacterial protection in water flood operations are provided by Armour polar organic compounds at concentrations as low as 7 to 8 ppm (based on 100% activity). Armacs®, Arquads®, Duomeens and Duomeen salts are successfully being used for this application.

Typical treatment cost

Arquad T-2C-50	1.2 mils/bbl.
Armac CD-50	1.0 mils/bbl.
Duomeen CDA-50	1.1 mils/bbl.
Duomeen TDO-50	0.8 mils/bbl.

There is an effective Armour Chemical for every water system. The brine content of the water is one of the major factors determining the product to be recommended for use.

For example, high corrosion rates in a salt water disposal system in Western Kansas were greatly reduced by using only 6 ppm of Duomeen TDO, one of Armour's oil soluble, water dispersible inhibitors.

Armour's technical staff is continuing to field test many chemicals that will increase injection rates. Ethomeen® C/15, for example, is increasing injectivity at no increase in injection pressures in the Oklahoma and Pennsylvania fields.

Check "B" in the coupon for more information about Armour Chemicals applicable to water flood operations.

In product lines, transportation equipment and storage tanks

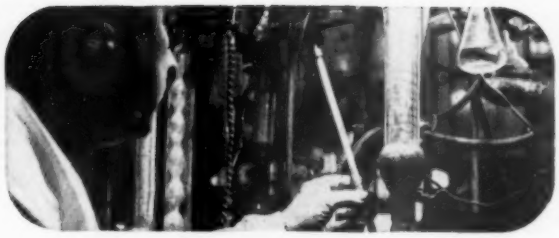
Pipeliners in many parts of the country are now using the Armeens®, Duomeens, or their salts, to protect pipelines from the costly effects of corrosion. By using these Armour Chemicals, operators are doubling —even tripling—life expectancy of pipelines.

Duomeen T dioleate

$$RNH(CH_2)_3NH_2 + 2C_{17}H_{33}COOH \longrightarrow \left[RNH(CH_2)_3NH_3\right]^{++}\left[OOCH_{33}C_{17}\right]^{-}_2$$

Duomeen T Di-Napthanate

$$RNH(CH_2)_3NH_2 + 2 \longrightarrow \left[RNH(CH_2)_3NH_3\right]^{++}$$



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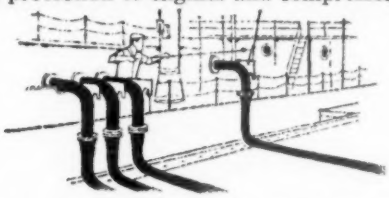
from Armour Chemical

Corrosion inhibition is achieved in gas line compressors by adding Arquad T-2C to cooling systems and radiators. Armac CD/50 also gives efficient, economical protection to engines and compressors.



The Duomeens are being used successfully to combat corrosion in refined product lines. Tankers are also being protected by these strongly cationic corrosion inhibiting chemicals.

More information regarding Armour Chemicals for these applications is available. Check "C" in the coupon.

Where Armour Chemicals for oil production will work tomorrow

Drilling muds. A relatively new Armour Chemical—Ethomeen S/12—is currently being tested as an emulsifier in drilling muds.

Acidizing and fracturing additives. It has been discovered that certain Arquads will form acid emulsions. The Arquads are used as emulsifiers in acid kerosene jets. They also control silicide swelling. In thickened oils they increase sand suspension. Test results show that extra corrosion protection for trucks and the tubing can be provided by the Arquads.

Water coning. Water production from coned wells has been reduced in a field test in Southern Louisiana by injecting two Armour surfactants in a water system. The treatment, based on laboratory work conducted by Dr. Alan S. Michaels of M.I.T. is also being field tested in other sections of the country to improve oil production.

Test and evaluate Armour's Chemicals for oil production. Our experienced oil chemists will help you determine the right chemical for your special problem. Send coupon—or call—Armour today!

NEWS NOTES

Houston. A new technique, showing the presence of hydrocarbons in thin sand beds and shaly sands normally by-passed by standard logging techniques, was discussed in a paper titled "Reversed Wetting Logging" at the recent S.P.E. meeting. The technique utilizes the hydrophobic-cationic characteristics of surfactants such as Armac® CD-50.

•

Tulsa. The Arquads®, quaternary ammonium chlorides, have now been completely cleared of being catalyst contaminants by at least three major refiners in the Southwest. There had been a tendency to class these excellent bactericides-corrosion inhibitors with chlorinated solvents.

•

Southeast Oklahoma. A new series of ethoxylated quaternary ammonium chlorides—the Ethoquads®—are showing promise for increasing injectivity here in field tests.

•

Hobbs, New Mexico. Clarification of injection water for secondary oil recovery is now being obtained through the addition of 0.1 pound of Arquad per ton of solids to be flocculated.

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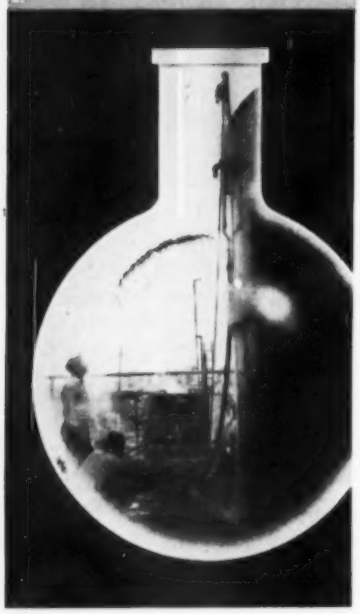

Best way
to strip a
tank exterior

STUDIES indicate that the best way to clean off all old paint from storage tanks is the Oakite ECP way . . . which recommends the *Hot Flow-On* method. At one refinery, jobs which took costly man-days of tedious wire brushing were completed in just a few hours by a two-man crew.

Oakite's ENGINEERED CLEANING PROGRAM stresses chemical cleaning. It's engineered specifically for your refinery, for your cleaning problems, and for each cleaning operation —tower by tower, valve by valve.

The Oakite engineer provides fully qualified technical service. He supplies detailed instruction based on practical refinery experience.

Each Oakite ECP is backed by a *laboratory* concentrating on chemical cleaning research, by *materials* known to make short work of refinery soils, by proved *methods*. Send for Bulletins. Oakite Products, Inc., 44C Rector Street, New York 6, N. Y.

OAKITE ECP your economy key

In our 50th year.

Are Computers Oversold?

"Some producers of computers who have only recently attempted to enter the field of automatic control of continuous processes are promising too much too soon," says I. Melville Stein, president of Leeds & Northrup Co.

Among these are companies that are competent in computer technology. But, Stein told the 14th annual symposium on instrumentation for process industries held recently at Texas A&M College, "there is much more to the automatic control of continuous processes than sound computer techniques."

Stein is "much concerned about the setback computer control may experience if, as a result of promising too much too soon, there are many disappointments in actual performance."

Though the future of computer control looks bright, it is still not clear to what extent computers will be justified, or what kind of computer will be needed, Stein feels.

The full advantage of advanced forms of computer control cannot be reached unless the process plant itself is susceptible to such control. Current computers, while needing improvement in on-stream reliability before taking over sole control of processes, are quite satisfactory for appraising the prospects and advantages to be gained by adding computer control, Stein told the symposium.

And, until more is known of the basic statics and dynamics of the process and its reactions, a clear-cut choice between analog and digital computer control does not exist.

Cooperation between computer users and computer makers is extremely important in the development of computer control for continuous processes.

Many of the best brains in this field are associated with progressive user organizations. Without their full cooperation, the control manufacturers would find it extremely difficult, if not impossible, to carry out the studies and developments essential to real success, Stein warned. However, it is largely because of present "splendid cooperation that I am optimistic about the future of computer control," he added.

A step-wise procedure in the development of computer control of large, complex, and continuous industrial processes is the logical approach, according to Stein.

It is better to segregate the whole complex process into several discrete major parts, and to be very thorough in the job of controlling each of these parts, than to try to control the entire process at the beginning.

When a really satisfactory control of each discrete major part has been achieved, it should not be difficult to coordinate the parts to give sound over-all control—particularly if this ultimate goal is kept in mind from the outset.

Computer-control for processes, even when "perfected," will not displace conventional direct controllers, Stein predicted.

Individual process-variable controllers are here to stay, and computer controls will be in the nature of an added refinement. So, if the computer should fail to function properly, the conventional control system will continue to operate the process just as it did before adding the computer refinement.

What will place the ultimate limit on computer control of continuous industrial processes—the process itself, or the computer controls?

Some of the leading technologists in the process industries reportedly feel that the limiting factor will be the computer controls.

However, Stein feels that the ultimate limit will not be the controls, and expects "sort of a 'seesaw' pattern in which both the controls and the process plant are continually improved—with the limitation shifting from time to time from one to the other."

"Probably," he says "the ultimate limit will be an economic one, wherein refinements in both the controls and the processes will have reached the point of diminishing returns."

Leeds & Northrup Co. entered into a cooperative agreement with Philco Corp. about a year ago to develop process control computers.

The purpose of the cooperative agreement is to adapt a computer with adequate reliability and other suitable characteristics to automatic control of continuous processes.

L&N has been active in work on both the analog and digital types of computers for process control. It has installed two analog computers with power companies. Its first digital installation was for Esso Standard Oil Co. at its Baton Rouge (La.) refinery. At present, the Esso computer is used for system studies necessary prior to attempting full process control, and to guide the process operators.

DuPont Dyes—DuPont offers a complete line of oil colors for identifying grades, meeting legal requirements and for adding brand identification to your gasoline, fuel oil, lubricants and other petroleum products.

Tetraethyl Lead—For smooth, knock-free power . . . highest octanes at lowest cost. To give you fast, dependable delivery, DuPont maintains ample stocks at 25 distribution points throughout the U.S., convenient to refiners everywhere. Stocks are available in tank cars and drums.

DuPont Metal Deactivator—Combat copper-caused gum in gasolines and sludge and gel formation in fuel oils with DuPont Metal Deactivator (DMD). The industry's standard for nearly 20 years.

DuPont Rust Preventive No. 2—Impart detergent action, stall protection and anti-rust property to gasolines at extremely low cost with DuPont Rust Preventive No. 2 (RP-2). This superior product is widely used also in jet and heating fuels.

"Ortholeum"® 300—Stabilize and protect greases with "Ortholeum" 300 grease stabilizer. It offers the combined advantages of metal deactivation and antioxidant action.

Fuel Oil Additive No. 2—Improve your fuel oils with DuPont FOA-2, the additive which stabilizes heating oils, diesel fuels and residual stocks. Its solubilizing action and dispersancy prevent sludge formation and suspend any sludge present in fuel systems. The sludge burns with the fuel.

Antioxidants—Protect gasolines from oxidation and gum formation. Complete line offers antioxidants for every purpose, every refinery stock. DuPont Antioxidant No. 22 is especially noteworthy for its additional usefulness in sweetening.

DuPont Metal Suppressor—A newly developed product uniquely effective for coating copper parts in hydrocarbon systems and thus suppressing solution of the metal into the product.

Additives for industrial oils and lubricants—Three widely used and highly effective additives for improving the performance and stability of industrial oils and lubricants are:

"Ortholeum" 162 lubricant assistant
PAN (phenyl-alpha-naphthylamine)
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How Du Pont additives can help improve petroleum products

Each of the additives in DuPont's complete line was developed to overcome a precise problem or add a performance "extra" to your petroleum product.

Service also is available for the selection and handling of these additives, and in training your blending plant personnel. Your DuPont Petroleum Chemicals representative supplies these and many other services. He's backed by a large staff of specialists in research, training, production, safety, sales promotion and advertising, men who have devoted long careers to cooperating with refiners.

Feel free to call in your DuPont representative, or write Petroleum Chemicals Division, E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Delaware.

DU PONT

Better Things for Better Living . . . *through Chemistry*

Tetraethyl Lead and other Petroleum Additives

What's New / IN PROCESSING AND PETROCHEMICALS

Continental Oil Co. will install a portable-type natural gasoline plant near Pecos, Tex.

The new $430,000 plant will be on Conoco's Ramsey lease. It will have an initial processing capacity of 5-million cf/d. Construction will start immediately, with completion planned by April.

Contract for the plant has been awarded to Southwest Industries, Inc., which will build the major units at its Houston (Tex.) plant. On location, the units will be assembled and mounted on skids to enable the plant to be moved from one location to another in a matter of weeks.

•

Engineering work has started on Imperial Oil Ltd.'s Winnipeg (Manitoba) liquid asphalt plant.

Capacity of the plant will be 125,000 bbl. a year. It is scheduled to be in operation by May, to supply road construction and maintenance needs in Manitoba and northwestern Ontario. It will eliminate the need for shipment of liquid asphalt from Imperial's refinery at Regina, Sask.

•

American Petrofina Co. of Texas is now operating a new alkylation unit at its Mount Pleasant (Tex.) refinery.

The new 1,500 b/d, HF unit is part of a $3-million modernization program, which also included a Platformer and related facilities.

•

Continental Oil Co. will expand and modernize its Ponca City (Okla.) grease plant. The program will cost about $380,000. Work will start within a few months, with completion expected late this year or in early 1960.

Plans include the installation of automatic equipment for controlling temperature, flow, mixing, and other steps in the manufacture and packaging of grease. Plant operations will be affected very little during the installation.

•

Sunray Mid-Continent Oil Co. has started construction on a new gas products plant in McClain County, Okla.

Work is under way on the gathering system for the plant, which will be located about 7 mi. southwest of Purcell, Okla. The new facilities will process 5-million cf/d of gas and will produce 32,000 gal. a day of propane, butane, and natural gasoline.

The cost of the plant will be $1-million. It will operate on a refrigeration-oil absorption principle. Gas from producing areas in a 63-sq. mi. area around the plant will be processed there. Dry gas will be sold to the Oklahoma Resources & Development Co. after liquid products have been removed. Expansion capabilities have been engineered into the facility to match anticipated increases in the area's gas production.

•

Home Oil Co., Ltd., intends to install and operate a gas processing plant along with other producers in the Carstairs gas field, 35 mi. west of Calgary, Alta.

Home Oil's successful discovery well in the Carstairs field was completed in April, 1958. The gas from the field is rich in liquid hydrocarbons and contains only ½% hydrogen sulfide. The company anticipates a recovery of 34 bbl. of condensate and liquid products per million cu. ft. of gas.

Though the limits of the field have not yet been determined, the open-flow potential of four completed wells ranges from 40-million to 107-million cf/d.

•

A gas processing plant jointly owned by Texas Natural Gasoline Corp. and Tennessee Gas Transmission Co. has been completed 15 mi. southeast of New Orleans.

The plant will process 150-million cf/d of gas, and has product fractionation facilities to handle about 380,000 gal. a day of liquids. It uses a combination absorption-refrigeration process operating at —20F. Texas Natural will operate the plant.

Products will include propane, nor-

THE COST CUTTING SERIES . . .

LUBRICANT SEAL Stops Leakage

Wherever valve leakage is a serious threat to quality control or safety, petroleum and gas engineers most often rely on lubricated plug valves. Each time the valve is lubricated (see cut of Rockwell-Nordstrom valves above) an entirely new sealing system is created. Lubrication is literally the same as completely reseating an ordinary valve except that the job is done in seconds . . . and for pennies.

In service, the lubricant seal can't be cut, worn or corroded because pressure forces it to actually "heal itself." Lubricant also hydraulically cushions the plug for instant operation and easy, quarter-turn closure. For details on Rockwell-Nordstrom valves—the only complete line of lubricated plug valves—write:

ROCKWELL MANUFACTURING COMPANY
PITTSBURGH 8, PA.

ARE YOU GETTING YOUR SHARE OF THE HIGH OCTANE MARKET?

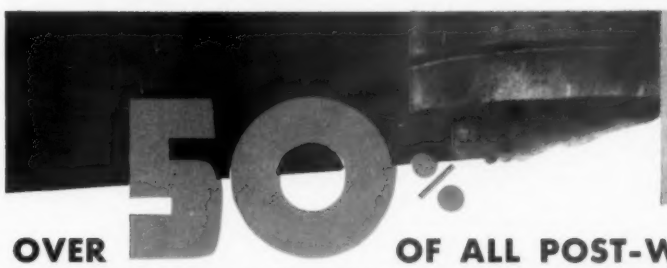
The consumption of Alkylate is growing for both government and civilian use, and this demand is expected to continue, at least into the middle 1960s. To get your share of the high octane market, consider adding an Alkylation Unit to your facilities as soon as possible.

The Oil and Gas Journal says, "Of the five typical high-quality blends which go into premium gasoline, alkylate is by far the best performer . . . more and more refiners are being pushed to include alkylate in their motor fuels. Heavy competition . . . is responsible for the new emphasis on alkylation."

WHY ALKYLATE IS THE KEY TO CURRENT GASOLINE BLENDS . . .

	Research octane (RON)	Motor octane (MON)	Sensitivity (RON minus MON)	Road octane (Union town)
Alkylate	103.0	104.5	−1.5	107.5
Reformate extract	103.7	94.0	9.7	103.5
C_7 plus reformate	103.0	93.5	9.5	102.5
C_5 plus reformate	100.0	91.7	8.3	100.0
Catalytic cracked	99.0	87.5	11.5	98.0

Reprinted courtesy The Oil and Gas Journal (Aug. 4, 1958)



OVER 50% OF ALL POST-WAR HF ALKYLATION UNITS OPERATING IN NORTH AMERICA WERE DESIGNED, ENGINEERED AND BUILT BY TRECO*

The Refinery Engineering Company has designed, engineered and constructed more HF alkylation units than all other companies combined.

THE TRECO LIST INCLUDES:

Shell Oil Company of Canada	1500 BPSD
NCRA	1522 BPSD
Cosden Petroleum Company	2068 BPSD
DX-Sunray (Tulsa)	2470 BPSD
DX-Sunray (Duncan)	3500 BPSD
CRA	1106 BPSD
Anderson-Prichard Oil Corp.	2150 BPSD
Bell Oil & Gas Company	1000 BPSD
The Carter Oil Company	2300 BPSD

Treco, with an outstanding record of fast refinery completion, can have your alkylation unit on stream QUICK. A telegram, telephone call or letter will bring complete information.

*to September 30, 1958

....talk with the TRECO man.....

TRECO

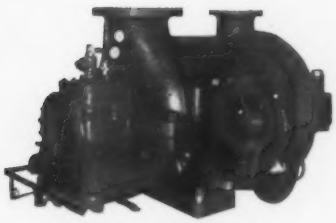
A DIVISION of VITRO CORPORATION of AMERICA

The REFINERY ENGINEERING Company

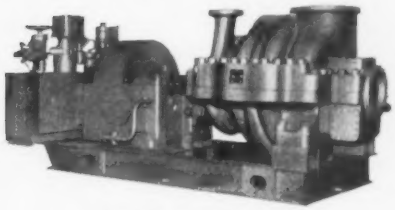
FARMINGTON NEW YORK TULSA TORONTO

John L. Parris, *Manager Centrifugal Compressor Sales, The Cooper-Bessemer Corporation, explains ...*

How you gain four ways when you specify Cooper-Bessemer Centrifugal Compressors

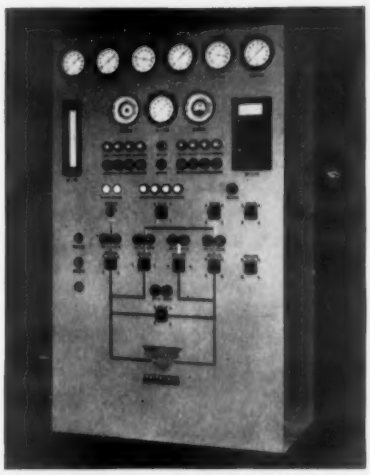


Horizontally split, process air or gas centrifugal compressor. Range: Up to 100,000 cfm.

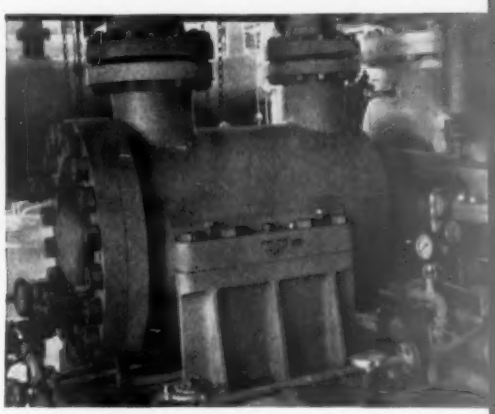


Horizontally split, intercooled centrifugal compressor designed for low cost shop and process air and gas. Up to 30,000 cfm.

Pipeline centrifugal booster with a history of record-breaking performance. Up to 20,000 bhp.



Installations can be integrated with Cooper-Bessemer En-Tronic Controls all the way from simple monitoring to complete system automation.



Barrel type centrifugal compressor for gas and air at pressures up to 5000 psi.

To get the most for your compressor dollars, it will pay you to check into Cooper-Bessemer Centrifugal Compressors because these fully-proved products offer you a combination of four outstanding advantages:

1. You get a design that's matched to your needs. A wide range of types and sizes of Cooper-Bessemer Centrifugal Compressors are available to assure optimum performance on *your* processing or air supply application.

2. You get unsurpassed quality. The designs include many field-proven distinctive features. Cooper-Bessemer's high standards of materials and craftsmanship are applied to every component of these precision-built units... to assure utmost reliability.

3. You can get undivided responsibility. We can engineer the entire compressor installation, including drive and controls. Cooper-Bessemer En-Tronic Controls are available to provide any degree of automation.

4. You get service for most profitable performance. Our outstanding field service and warehouse facilities assure prompt attention to your operating needs... with resulting reduction in your inventory and downtime.

Our nearest office will gladly supply complete information on Cooper-Bessemer Centrifugal Compressors to meet your needs exactly. Call them today.

BRANCH OFFICES: Grove City • New York • Chicago • Washington San Francisco • Los Angeles • Houston • Dallas • Odessa • Pampa Greggton • Seattle • Tulsa • St. Louis • Kansas City • Minneapolis New Orleans • Shreveport • Casper

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COMPRESSORS: RECIPROCATING AND CENTRIFUGAL, ENGINE OR MOTOR DRIVEN

Well	BEFORE TREATMENT		AFTER KONTOL SQUEEZE TREATMENT	
	Tubing Failures Per Year	Iron Loss (Lbs/Day)	Tubing Failures Per Year	Iron Loss (Lbs/Day)
A	2	3.8	0	0.7
B	2	4.5	0	0.7
C	4	8.8	2	4.3
D	1	10.1	0	0.6
E	1.7	11.2	0	1.6
F	2	8.8	0	0.5
G	1.3	4.7	0	1.0
H	1.5	3.3	0	0.5
	15.5	55.4	2	9.9

See our exhibit at the International Petroleum Exposition, May 14-23, and 5th World Petroleum Congress, June 1-5.

another
TRETOLITE SERVICE
report

87% reduction
saves $52,000 annually

Squeeze Application of KONTOL* CORROSION INHIBITOR REDUCES TUBING FAILURES FROM 15.5 to 2 PER YEAR

A corrosion control program employing KONTOL substantially paid off on a Texas lease. Based on the cost of pulling wells and replacing corroded tubing, an average of $4,000 per job, the savings in one year (based on figures in table above) approximated $52,000.

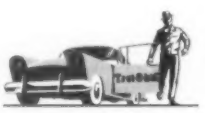
HOW KONTOL PROTECTION WAS ACHIEVED

KONTOL Corrosion Inhibitor was squeezed into the well formations at the rate of 55 gallons per well, followed by 2 quarts of TRET-O-LITE* demulsifying chemical in 15 barrels of oil, followed by oil injection sufficient to displace the liquid in the tubing and force the chemical into the formation. Injection was obtained by means of a 5 g.p.m. triplex pump and 40 g.p.m. centrifugal pump.

COST OF TREATMENT

The KONTOL squeeze treatment cost about 70 mills per barrel of produced oil and 1.9 mills per barrel of fluid produced. This resulted in a treating cost of 17 mills per barrel less than previous corrosion prevention methods.

This is just one of many cost savings stories on KONTOL Corrosion Inhibitor treatment. For more—and information on how to start a KONTOL Corrosion Control Program—ask the Man in the Red Car. Or write to . . .



KF 59-1

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TRINIDAD: Neal and Massy, Ltd., Port of Spain, P.O. Box 544

mal butane, isobutane, and natural gasoline. Additional products will be produced when more gas becomes available in the area.

•

Polypropylene will be produced in France by Pechiney and La Societe Normande de Matieres Plastiques under license agreements from Montecatini-Ziegler patents.

The two plants will have an annual capacity of 22-million lb. each. Their exact location has not been disclosed. Construction is to begin immediately, with both plants scheduled to go on stream some time in 1960.

•

Mobay Chemical Co., maker of basic urethane chemicals, plans a 50% expansion of tolylene diisocyanate capacity at New Martinsville, W. Va.

Tolylene diisocyanate (TDI) is one of the basic chemicals used to make urethane foam cushioning and insulating materials, elastomers, and industrial coatings.

This expansion will be the second since the New Martinsville plant went on stream in 1956, and will increase its TDI capacity to 18-million lb. a year. Completion of the expansion is scheduled for early 1960.

Mobay is jointly owned by Monsanto Chemical Co. and Farbenfabriken-Bayer, of Germany.

•

Arkansas-Louisiana Gas Co. is investigating the possibility of taking over the government-owned Maumelle ordnance depot, near Little Rock, Ark.

The big depot is in the process of being declared surplus to Army needs. It had been held on a standby basis until recently. Ark-La Gas is understood to be interested in the depot because it has possibilities as a chemical producing center, and because the large acreage has possibilities as an industrial center.

•

Refineries emit only 7% of the total hydrocarbons and only 8% of the total oxides of nitrogen that pour each day into the Los Angeles atmosphere, according to the report of a joint federal-state-county oil-industry survey team.

Automobiles were found to account for 70% of these pollutants in the Los Angeles basin. Hydrocarbon losses from 18 refineries in the area, charging 734,000 b/d of crude, were found to be 103 tons a day, along with daily emissions of 115 tons of sulfur dioxide, 56 tons of oxides of nitrogen, 10 tons of particulate matter, 5 tons of sulfur trioxide, 5 tons of ammonia, 3 tons of aldehydes, and 3 tons of organic acids. An additional 1,700 tons of "potential" pollutants from refineries do not reach the atmosphere because of smog-prevention techniques used in the plants.

•

Renewed efforts to force refiners to blend alcohol into motor fuel are before the U.S. House of Representatives.

Rep. Jensen (R., Iowa) has introduced a bill that would require, after 18 months from date of passage, that all motor fuel contain 5% alcohol made from surplus farm commodities. He said that regular gasoline mixed with alcohol "gives you equal or more miles per gallon than does straight high-grade gasoline, which costs from 3¢ to 5¢ more than regular gasoline."

A similar proposal died in the House last year.

This announcement is neither an offer to sell nor a solicitation of an offer to buy these securities. The offer is made only by the Prospectus.

2,900,000 Shares

Universal Oil Processes, Inc.

(Name to be changed to Universal Oil Products Company)

Capital Stock

(Par Value $1 Per Share)

Price $25 per Share

Copies of the Prospectus may be obtained in any State only from such of the several Underwriters, including the undersigned, as may lawfully offer the securities in such State.

Lehman Brothers

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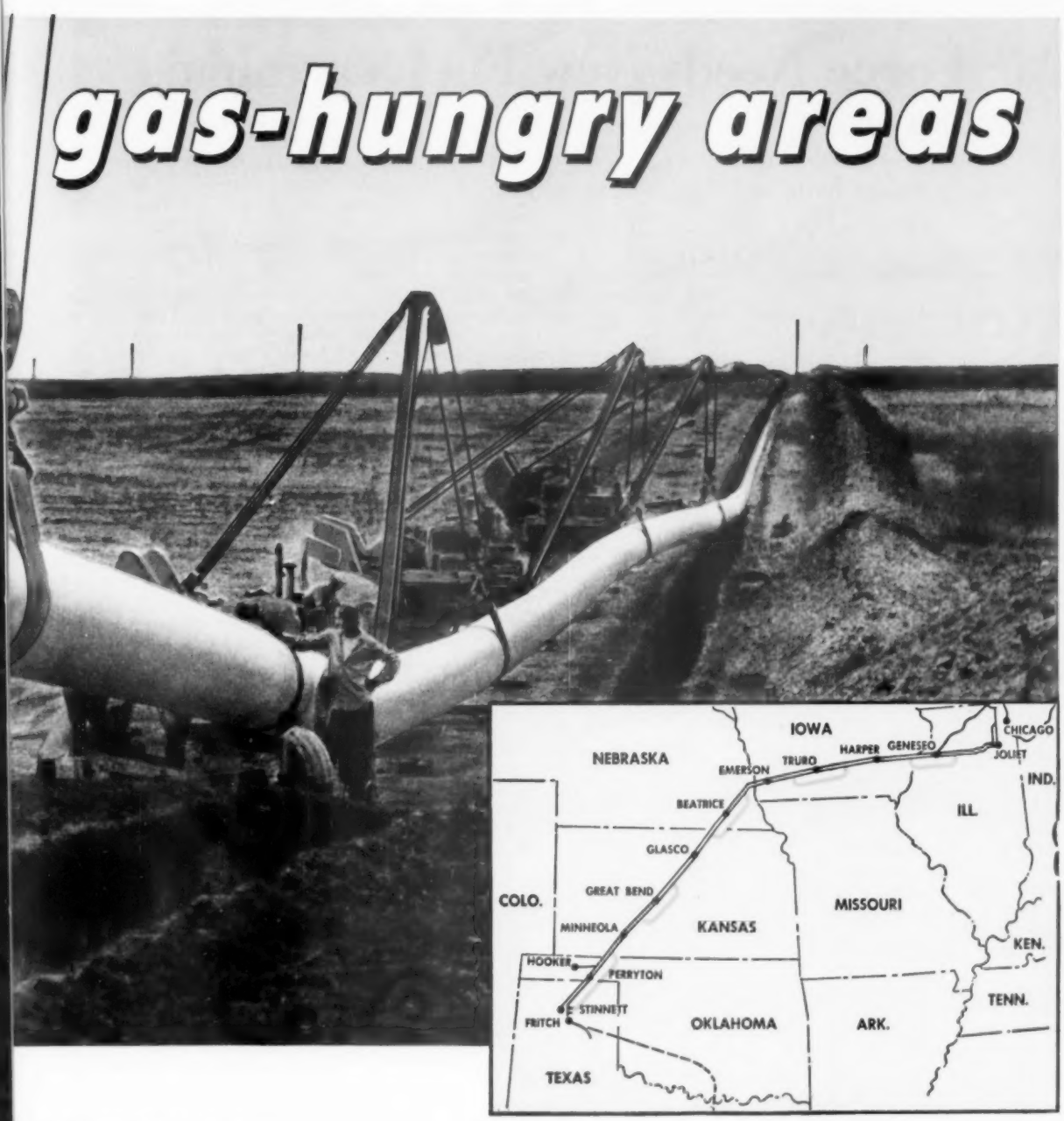
February 5, 1959.

Natural Gas Pipe Line Company of America completes 513 miles of looping line in record time

Additional supplies of natural gas from the Panhandle and north-central areas of Texas will soon flow through new lines, and initial deliveries to the Iowa, Illinois, Wisconsin and Indiana markets will be increased by 100 million cubic feet per day. Nearly five hundred miles of 36" pipe and twenty miles of 26" pipe have been laid . . . will bring new gas supplies to the midwestern markets. In furnishing a little more than half this pipe, A. O. Smith Corporation is proud to have helped serve Natural Gas Pipe Line Company of America and its tremendous markets.

gas-hungry areas



For 30 years . . .

A. O. Smith line pipe has always been manufactured to a high standard of quality . . . precisely controlled at every step of production. That's why A. O. Smith pipe made and installed in 1928 is still in operation. That's why so much A. O. Smith pipe has been used on so many important pipeline projects.

Through research . . . a better way

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DEPT/Transportation & Storage

Air Force Needs New Fuel Terminals

Strategists call many of the storage facilities servicing air bases vulnerable to attack. So oil companies are being asked to build and operate new ones.

The Air Force is asking oil companies to help it to relocate and operate many of its petroleum product storage terminals.

The Air Force calls this project its "hardening program." What it amounts to is this:

Many of the 49 commercial terminals and 16 government-owned terminals handling fuels for air bases are now in what the Atomic Energy Commission calls "target areas." The Air Force intends to withdraw storage of its fuels from these terminals wherever possible, and transfer operations to new facilities at less vulnerable sites.

An Air Force spokesman says that the over-all number of terminals won't be increased by this program, "but we'll be protected far better than at present."

The Military Petroleum Supply Agency, the Defense Dept.'s procurement service, is now in the midst of letting contracts for construction and operation of such terminals to companies with oil-handling know-how. It has let about $30-million of such contracts thus far.

Last week, Verona Petroleum Terminals, Inc., won the latest contract to build and operate a petroleum terminal to service an air base. The company will be in charge of a 565,000-bbl. facility near Verona, N.Y.

The Verona terminal is scheduled to be in operation by fall. It will store aviation gasoline and jet fuel to be used at the Air Force's Rome (N.Y.) base.

Verona Terminals is now readying orders for materials.

Earlier in the month, Espada Corp., of Dallas, was awarded a contract to build and operate a 400,000-bbl. jet fuel storage center, which will service air bases in the upper Great Lakes area.

The terminal, which will have eight 50,000-bbl. storage tanks, will be located at Escanaba, Mich.

Espada will finance construction of the terminal, and will operate it for five years on a monthly fee basis.

Completion of work on the terminal is expected by mid-October.

Preliminary work is also beginning on the 1-million-bbl. Martinez (Calif.) underground storage depot to be built by Lark Corp., of Dallas, to handle fuels for Air Force operations in that area.

The Martinez project will include docking facilities to handle up to T-5 tankers, and a short pipeline from Martinez to the Southern Pacific products pipeline system at Concord, Calif.

Lark Corp. was formed especially to bid on the Martinez project. Guy M. Willis, of Dallas, is president, and Clarence L. Norsworthy, Jr., and Jay Simmons, also of Dallas, are vice-presidents. All have oil-industry backgrounds.

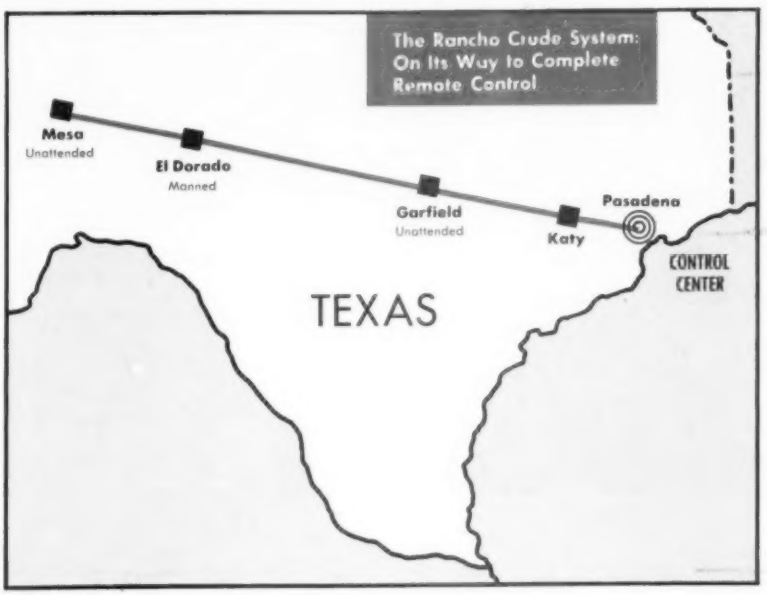
Norsworthy says that individual construction awards will be made shortly. Some earth moving is already under way.

The terminal is expected to be in at least partial use by July 1.

The Air Force will ask for bids for several more projects of this type in the coming months—and years.

MPSA told PETROLEUM WEEK last week that it has been asked by the Air Force to solicit the services of other companies interested in building petroleum terminals around the country.

And the agency can negotiate for these terminals only as funds are made available to it for such work. As a result, the over-all program will likely be stretched out over several years.



Rancho Line Will Go 'Automatic'

The 457-mi. Rancho crude system from West Texas to Houston is on its way to complete remote control.

The Rancho Pipe Line system is the 250,000 b/d, 24-in. line which moves West Texas crude to Gulf markets. It is owned by Ashland Pipe Line Co., Crown-Rancho Pipe Line Corp., Nantucket Pipe Line Co., Service Pipe Line Co., Phillips Pipe Line Co., Shell Pipe Line Corp., and Sinclair Pipe Line Co. Shell operates the system.

Rancho took its first step into remote control in late 1957 by adding an unmanned pump station at Katy, Tex., near Houston.

Now the system is being prepared to go all the way.

By early spring, three of the four pump stations on the Rancho line

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will be controlled from a new center at Pasadena, Tex., near Houston.

Shell is converting Rancho's Mesa station, near McCamey, and its Garfield station, near Bastrop, from manual to unattended operation.

The centrifugal pumps driven by 1,750-hp. electric motors at each of the stations will remain, but the men who watch over them will be given other assignments in the Rancho system.

Preliminary work on the conversion has already begun, and Shell estimates that both stations will be ready for remote control within 90 days.

Contracts for installation of the control equipment itself will be awarded shortly.

The fourth station on the line will also be converted to remote control before long.

Shell says that plans are now under study for converting the Bailey station, near Eldorado, and that money for it has been included in this year's budget.

Shell doesn't know exactly when the conversion will take place, however.

Making the Bailey station an unmanned operation will be more difficult than conversion of the other Rancho stations. That's because crude from another pipeline enters the system at Bailey. Replacing the men who gauge tanks and batch crude at Bailey will require equipment not needed at the Mesa and Garfield sites.

The system will use Westinghouse Electric Corp.'s "Visicode" supervisory control system.

A Shell spokesman says that, for Rancho, Visicode should be the least expensive and best-working of the many control systems.

The Westinghouse system will send operating information from the pump stations to Pasadena by means of pulse-like electrical signals. The signals will be carried through a Shell-owned telephone wire system, which runs alongside of the pipeline.

Westinghouse emphasizes these features of Visicode:

- Automatic checkback. "A remote device is first selected [at the control center] and selection is automatically checked and indicated to the operator before an operation can be performed on the device."
- Minimum maintenance. "Visicode consists entirely of standard telephone-type relays; therefore it has a minimum of moving parts."
- Master checking. "The operator can put the entire equipment through a complete operating cycle by pushing the check button without first selecting a particular point."

What's New / IN TRANSPORTATION

The latest estimate shows that the U.S. now ranks fifth in the amount of tanker tonnage under construction.

The Shipbuilders Council of America reported last week that, as of Jan. 1 of this year, 47 tankers totaling 1,278,600 gross tons were under construction in this country.

Great Britain, Japan, Sweden, and West Germany—in that order—lead the U.S. in such building.

The council says that 830 oil-carrying vessels ranging down to 1,000 gross tons are now under construction around the world.

•

The Texas Railroad Commission has before it a request for higher rates for crude and product tank truck shipments.

The Texas Tank Truck Assn. is asking the commission to approve rates ranging from 13¢ per 100 lb. for 10 mi. up to $1.52 per 100 lb. for 1,000 mi.

•

Northern Oklahoma Gas Co. plans to build a 75-mi., 12-in. line from fields in the Ponca City area to Cherokee, in Alfalfa County.

The $2.5-million line is expected to be in service by late spring. Northern Oklahoma is negotiating for additional gas from Alfalfa and Grant County producers.

•

Michigan Wisconsin Pipe Line Co. and Texas Gas Transmission Corp. each plan to build $3-million worth of gas gathering lines along their systems.

The companies' applications for these expansion plans have just been accepted for filing by the Federal Power Commission. Both applications are of the "budget" type, with Michigan Wisconsin planning a $500,000 limit for each individual project and Texas Gas a $400,000 limit.

•

Buckeye Pipe Line Co. will build the next special products line to an Air Force base by tying Griffiss Air Base, Rome, N. Y., into its system.

The company plans to build an 11-mi., 16-in. lateral from the base to a point on its recently completed Syracuse-Utica line. Jet fuel for the base will enter the Buckeye system at Linden, N. J.

•

Natural gas from the Hallsville Northwest field, Harrison County, Tex., is finally getting an outlet to market.

Hunt Oil Co., operator in the field, plans to build a $3-million compressor station there to increase gas pressure to a point where it can be moved in Texas Eastern Transmission Corp.'s line which runs nearby.

Gas from 26 oil wells in the field, which was opened in late 1956, has been flared because of lack of outlet.

•

Republic Oil Refining Co. will build, own, and operate a 160,000-bbl. products terminal for the military at Belton, S. C.

The plant, scheduled for completion by July 1, will handle mostly aviation fuels.

•

Freeport Bunkering Co., Ltd. will open its Grand Bahama Island bunkering terminal in April, instead of some time this month. Construction difficulties have caused the delay.

•

Cameron Crude Oil Corp. plans to tie Harper County (Okla.) crude production into the cross-Kansas Jayhawk system.

Cameron is ready to begin construction on a 30-mi., 8-in. line from the Southeast Stockholm and North Buffalo fields to the Harper Ranch station of the Jayhawk line.

The $1.5-million line, which would carry condensate as well as crude, will be in operation about July 1.

Cameron also plans to extend the line eventually to the Sun Oil Co. natural gasoline plant at Laverne, Okla.

•

The Wyoming Public Service Commission has approved plans for a short crude line to provide an outlet for crude from the O'Brien Springs field.

Teton Pipeline Corp. will build the 7-mi. line from the field to Sinclair Pipe Line Co.'s main line nearby.

Sources of Argentina's 1958 Oil Imports

(in tons)

Loading Point	Crude Oil	Fuel Oil	Diesel Fuel	Gas Oil	Gasoline	AvGas	Kerosine	Total
VENEZUELA								
Puerto La Cruz	2,175,072	30,433	—	—	—	—	—	2,205,505
Bachaquero	772,223	59,823	—	—	—	—	—	832,046
Punta Cardon	265,946	9,247	17,442	67,504	—	—	29,941	390,080
Amuay Bay	344,454	—	—	—	—	—	—	344,454
San Lorenzo	214,870	9,227	—	—	—	—	—	224,097
Total	**3,772,565**	**108,730**	**17,442**	**67,504**	—	—	**29,941**	**3,996,182**
OTHER LATIN AMERICA								
Los Organos (Peru)	27,115	—	—	—	—	—	—	27,115
Cabo Blanco (Peru)	80,143	—	—	—	—	—	—	80,143
La Libertad (Ecuador)	56,890	—	—	—	—	—	—	56,890
Trinidad	—	51,318	—	—	—	—	—	51,318
Total	**164,148**	**51,318**	—	—	—	—	—	**215,466**
DUTCH ANTILLES								
Curacao	—	1,373,019	192,382	90,737	29,370	4,238	70,162	1,759,908
Aruba	—	103,438	29,790	—	20,591	14,564	4,078	172,461
Total	—	**1,476,457**	**222,172**	**90,737**	**49,961**	**18,802**	**74,240**	**1,932,369**
EUROPE: Rotterdam	—	**16,108**	—	—	—	—	—	**16,108**
MIDDLE EAST: Kuwait	**1,880,010**	—	—	—	—	—	—	**1,880,010**
SOVIET BLOC:								
Tuapse (USSR)	—	—	—	144,792	—	—	29,299	174,091
Novorossisk (USSR)	528,970	—	—	—	—	—	—	528,970
Constanza (Rumania)	—	—	125,002	16,374	—	—	11,117	152,493
Total	**528,970**	—	**125,002**	**161,166**	—	—	**40,416**	**855,554**
GRAND TOTAL, 1958	**6,345,693**	**1,652,613**	**364,616**	**319,407**	**49,961**	**18,802**	**144,597**	**8,895,689**

Are Argentine Import Needs Past Peak?

BUENOS AIRES—Argentina may have passed its all-time peak for oil imports in 1958, with this year showing a downturn. The country's eventual goal is elimination of any substantial imports.

Last year, Argentina imported nearly 8.9-million tons of crude and products, according to a tabulation (above) compiled by PETROLEUM WEEK in Buenos Aires from official imports documents. These imports met about two-thirds of Argentina's total demand.

This year, with Argentina's oil development policy changed to admit private participation, U.S. oil companies may help boost domestic output to an estimated 120,000 b/d.

This would meet about 43% of the 275,000 b/d demand estimated for 1959, reducing to 57% the gap to be filled by imports.

The imports decrease anticipated this year will be the first since Argentina began importing oil at the beginning of the century.

Imports have been rising steadily, though they have leveled off in the past several years. Imports in 1958 were 4% above 1957, compared with a 7% gain in that year and a 10% gain in 1956.

The cuts in imports mean that some traditional suppliers of Argentina's imported oil will be looking elsewhere for substitute markets as internal oil needs are filled by companies operating in Argentina.

Indiana Standard's Pan American International, a newcomer to Argentina, will have preference in supplying a good share of any imported crude oil needed by the state oil company after 1960—under terms of its oil development contract (PW—Aug.15 '58,p42).

Esso and Royal Dutch Shell, which have long-established integrated operations in Argentina, are assured of maintaining their marketing positions —with imported oil if necessary— under terms of their new development contracts (PW—Jan.23'59,p103).

As in previous years, Venezuela was Argentina's No. 1 oil supplier last year, providing 45% of its oil imports. The Dutch Antilles and the Middle East ranked next, with 22% and 21% respectively.

All of the Middle East oil was shipped from Kuwait's port of Mina al Ahmadi.

The Soviet Bloc, which didn't figure as an Argentine oil supplier in 1957, moved into fourth place last year, with 10%. The U.S. occupied that spot two years ago, but disappeared from the list in 1958.

Latin American countries—excluding Venezuela—were minor suppliers last year. And Europe was at the bottom of the list.

Crude oil imports showed a 12% gain last year. Diesel fuel imports kept on leaping, to 47% above 1957.

Imports of all other refined products were cut: fuel oil by 14%; gas oil by 23%; gasoline by 33%; aviation gasoline by 63%; kerosine by 7%.

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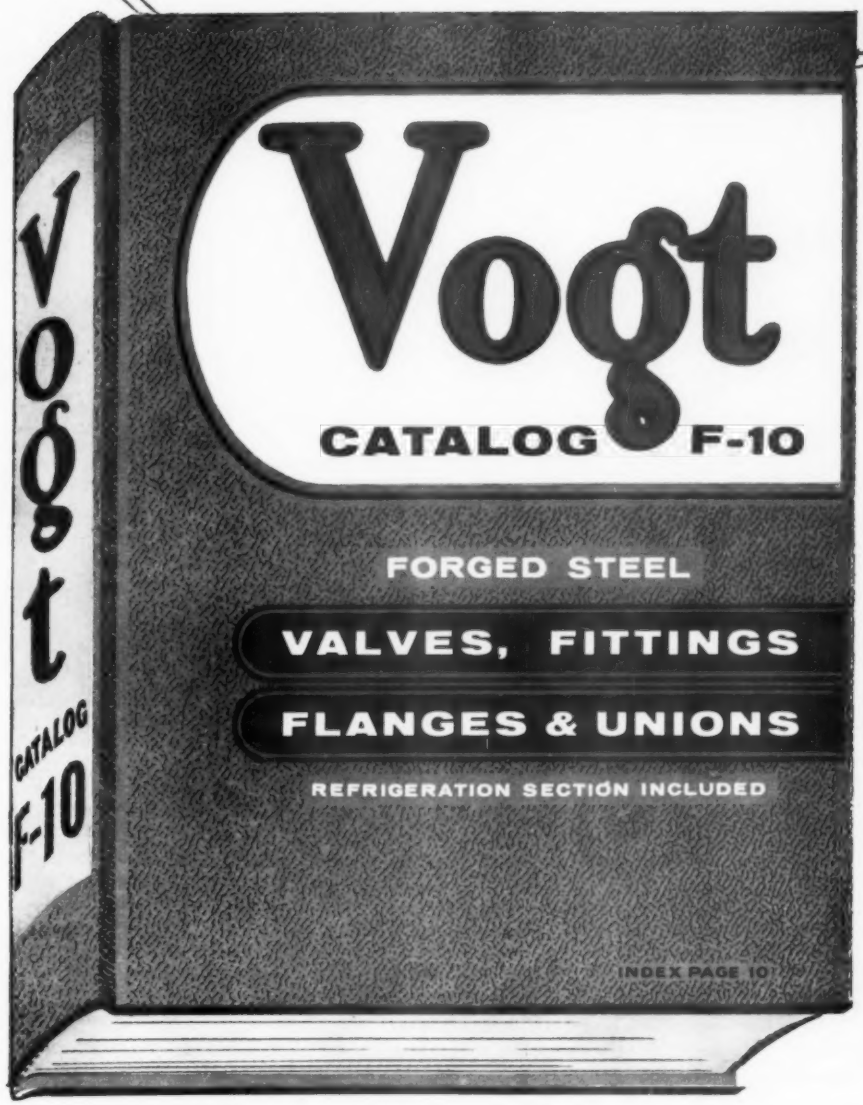

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Kuwait Tightens Security . . .

(A Special Report from Petroleum Week's Middle East Bureau Chief)

The ruling family of Kuwait—the Middle East's No. 1 oil producer—is consolidating its position to better withstand pressures from rival extremist cross-currents in the Arab world, now making themselves felt increasingly in the Persian Gulf sheikhdom.

This is the sense of changes made in top security and government posts last week in Kuwait, where Gulf Oil and British Petroleum jointly are currently producing some 1.4-million b/d.

The present ruler's uncle, Sheikh Abdullah Mubarak, who has held the important post of Director of Security (military forces) for many years, last week assumed additional duties as Police Chief of Kuwait and Security Chief of the Ahmadi oil region north of Kuwait town.

The young and able former Security Chief of Ahmadi, Sheikh Jabir Ahmad, has become Director of the Treasury, a post which the ruler had been holding in his own hands.

Informed quarters believe these changes are a reshuffle or redistribution of responsibilities within the ruling Subah family, which thus retains full control. It is said to be very much united.

Sheikh Mubarak has long been considered the efficient "strong man" of the ruling family. He also has a reputation in the Arab world of being more nationalist than the ruling Sheikh. Both of these attributes should help him in his extended powers as supreme security chief.

* * *

The changes were reportedly contemplated for many weeks. The fact that they took place a few days after large-scale pro-Nasser demonstrations in Kuwait town has led to widespread speculation.

Censorship was clamped down after the demonstrations, political clubs were closed, and newspapers were suspended. Kuwait Radio (monitored in Bahrein) broadcast an appeal to the populace not to heed "rash young elements who have become blind to the public interest."

The pro-Cairo demonstrations took place on Feb. 1—the anniversary of the union of Egypt and Syria in the United Arab Republic—which was declared an official holiday. They apparently got out of hand, and tension continued in Kuwait town even after strict security measures were imposed.

* * *

Nearly everyone in Kuwait, including sheikhs of the ruling family, professes to be pro-Nasser. The demonstrations thus must have been organized originally to be not so much an anti-Sheikh outburst as an anti-Iraqi gesture, to lend Kuwaiti support to Nasser's current tug-of-war with Communist-backed Iraqi separatists.

The ruling Sheikh must have viewed these nationalist outbursts as directed against his authority, however, deciding then to speed up the reshuffling of responsibilities and strengthening of public security that he had been contemplating for some time.

Reliable sources say the ruling family, while professing ardent Arab nationalism, does not want to antagonize the Iraqis either.

Responsible Kuwaitis, however, do not conceal their fear that Iraqi Communists will try to make inroads into Kuwait to establish a base for Soviet subversion in the Persian Gulf area.

Right now, Iraqi Communists are too busy consolidating, or even holding, their recently-won positions in Iraq. But the possibility of infiltration across the wide open Iraq-Kuwait border should not be excluded.

* * *

One immediate effect of the changes within the sheikhdom may be Kuwait's application for membership in the Arab League—as a gesture of solidarity with Nasser's UAR and of appeasement to the strongly Nasserist local population. Mubarak publicly favored Kuwait's joining the League some months ago. British representations to the ruling sheikh reportedly postponed a decision, which, as a foreign policy matter, would require Britain's approval under their treaty relations.

Preparing for a tie-in on one of two expansion projects begun in 1958 for Transcontinental Gas Pipe Line Corp.

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Cairo Lists Arab Oil Congress Topics

LONDON—The Arab League is giving a big build-up to the forthcoming Arab Oil Congress, scheduled to start in Cairo Apr. 16. An Arab Oil Exhibition will be held at the same time and run until May 6.

Agenda of the Congress, sponsored by the Arab League's Permanent Petroleum Bureau, will cover all aspects of the oil industry in the Arab world. Company-labor relations and company-government relations will be included.

Greater government participation in Middle East oil operations and higher profit shares may be discussed, informed sources anticipate.

But, they add, there's a great deal of difference between "discussing" and passing recommendations along to the governments concerned. Some of the topics to be discussed have been on the agenda of one Arab League committee or another over the past seven years.

If—and it's a big if—political and economic rivalries are shelved, Arab governments could come out of the Congress with a "united front" toward Middle East oil operators.

The long-standing and again emergent conflict of interest between Cairo and Baghdad makes it appear unlikely that any joint Arab stand will be taken on oil now, any more than it has in the past. Thus far, Arab states have taken a joint position on only one question: the boycott of Israel.

Legislation is one of the focal topics slated for discussion at the Congress.

The topic is broken down into several segments:

- Petroleum legislation relating to prospecting, exploration, and development, and to the petroleum industry as a whole.
- Legislation on labor conditions in oil fields, and on industrial installations.
- Legislation on relations between governments and oil companies, with regard to prospecting permits and development concessions.
- Legislation on "financial obligations," such as taxes and royalties, the rights of property owners and of those who discover oil, and the sovereignty of the state in regard to private capital investment.
- Legislation on foreign capital and foreign experts in the oil industry.

The other topics listed:

- Modern methods of exploration, drilling, production, transport, and processing.
- Petroleum byproducts.
- Economics of the petroleum industry.
- Statistics on oil production and consumption.
- Oil reserves, both proved and unproved, in the Arab world.
- The labor force in the oil industry, including wage scales, health and other services, labor conditions, and difficulties.
- Natural and geographical factors affecting oil development.
- Effects of cooperation among Arab countries on production, transport, and marketing.
- Effect of the oil industry on Arab economy.
- Capital investments in the industry, amounts invested in exploration and development, and future prospects of investment.
- Government participation in the industrial sphere, and government aid, such as subsidies, tax exemptions, and loans to oil exploration and development companies.

Two non-Arab countries—Iran and Venezuela—were invited to the Congress as observers. Iran declined, but Venezuela has agreed to attend.

Italy Joins Swiss Refining Plan

MILAN—Italy's state oil unit has taken its initial step to sew up its first refining outlet outside of Italy.

Officials of Ente Nazionale Idrocarburi last week gave PETROLEUM WEEK details of its agreement with Soc. Financiere Italo-Suisse, of Geneva, to form a new company to build a refinery in Switzerland, and a crude oil pipeline from Italy.

The two projects together will be built and operated on a 50-50 basis. But ENI will have a larger participation in the pipeline, and SFIS a compensating larger share in the refinery.

The plan calls for building of a 40,000 b/d refinery in Aigle, Switzerland, to be fed by a new 28-in. pipeline from Genoa, Italy.

The 200,000 b/d line will total 373 mi. According to ENI, this includes 16-20-in. branches from Genoa into northern Italy to supply crude and fuel oil to Milan, Turin, and Piacenza. The initial trunk line is slated for completion by 1960.

The pipeline is expected to run into unusual construction problems in crossing the Alps through the Great Saint Bernard.

The project will sharply cut land transportation costs for oil imports into landlocked Switzerland.

The crude pipeline may eventually be extended into the industrial area of southern Germany.

ENI says capacity of the 280-mi. extension to Bavaria from Aigle would be 80,000 to 100,000 b/d.

The Italian government has given the over-all project its blessing, but insists that it be financed entirely from non-Italian sources.

Under the terms by which the Italian Ministry of Participations approved the project, ENI—although half-owner of the project—will not be permitted to borrow money for construction on the Italian money market.

Italian private companies have repeatedly complained that state-owned enterprises are draining 50% of available capital in Italy, although employing twenty times fewer workers than private enterprise.

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Study Sahara Gas Tanker

PARIS—Four French oil companies announced plans last week to develop a liquid-methane tanker to transport Sahara natural gas.

The four—SN Repal, Cie. Francaise des Petroles (Algerie), Creps, and Petropar—are backed by the French chemical giant, Air Liquide, in a new research company. The company, called Soc. d'Etude du Transport et de la Valorization des Gaz Naturels du Sahara (Segans), will start research on the tanker in April at the Villeras test station, near Paris.

The companies will watch closely what happens with the first shipment of liquid methane now being made by a U.S.-British group. The shipment is due to arrive in Britain this week (PW—Feb.13'59,p38.)

The French government has either full control or an interest in the four companies grouped in Segans. But other companies interested in liquid-methane transport may use the Villeras test station.

Segans will carry out tests on isothermal tank models with capacities of 700 and 3,500 cu. ft. Liquid nitrogen will be used for tests, instead of liquid methane. The reason, a company spokesman says, is that nitrogen is colder and denser, and will provide more vigorous conditions for the tests.

Finding outlets for natural gas from the Sahara fields—especially Hassi R'Mel—is a big problem for the French government. Planned industrialization of Algeria will take up relatively little gas.

Two other ways of getting the gas to Europe are now being examined. One is a pipeline running across the Mediterranean or the Straits of Gibraltar (PW—Nov.7'58,p107). The other is a plan to use gas to fuel electric power plants, and to transmit the power to Europe with a high-voltage electrical transmission system.

Venezuela Reports on 1958 Oil Operations

CARACAS — Venezuela's proved oil reserves rose 10.2% last year to 17.2-billion bbl. as of Dec. 31.

According to the annual report of the Ministry of Mines & Hydrocarbons, the net increase for the year was 1,585,000,000 bbl. Reserves at the end of 1957 were 15,592,000,000 bbl.

The gross increase in reserves was 2,535,000,000 bbl., and production was 959-million bbl. The ratio of annual production to reserves was 5.5%.

Concessions in effect at year's end totaled 15,689,000 acres, including 14,848,000 acres in development leases and 841,000 acres in exploration rights. A total of 839,000 acres were renounced during the year, representing a 5% decrease from the 16,527,000 acres held at the end of 1957.

An estimated 1,140 wells were completed in 1958.

Of 981 drilled in the first ten months, 815 were completed as oil producers, nine as gas producers, 148 as dry holes, and nine as injection wells.

What's New / AROUND THE WORLD

SAUDI ARABIA—Aramco has brought in its fourth producer at the big new Khurais field, near the inland "preferential area" for which several companies, including Indiana Standard, have been negotiating.

The No. 4 Khurais, a deep test 2 mi. north of the 1957 discovery well, was carried to a total depth below 13,000 ft. and is now being plugged back. Like the first three wells, which were completed at depths around 5,000 to 5,500 ft., the No. 4 will be completed for production in the Arab zone. The No. 2 well is 4 mi. southwest of the discovery well, and No. 3 is 5½ mi. southeast.

•

RED CHINA—Six new oil fields were discovered in Sinkiang last year, according to Radio Peking.

Three of them extended the Karamai oil area to more than 62 mi. in length. Another is in the Kucha basin, one is west of Urumchi, where production has been started, and one is in the Turfan basin, near the Lanchow-Sinkiang railway.

•

INDIA—The oil ministry says a Rumanian-Russian drilling team will shortly start a new test in the Cambay area at Malasoni, close to Lunej, where India's Oil & Natural Gas Commission claimed to have found oil last year (PW—Dec.5'58,p60).

The commission, which shut in the Lunej wildcat after drilling to 8,000 ft., has been continuing exploration in the Baroda area of north Bombay state.

•

FRANCE—Oil has been found in a test drilled 6 mi. west of the Paris Basin discovery at Chailly-en-Biere.

Like the discovery well, the No. 1 Perthes encountered pay at 5,475 ft. in the Dogger (middle Jurassic). It's due for testing this week by Cie. d'Exploration Petroliere. The No. 1 Chailly discovery is now producing 63 b/d from 5,485 ft., and the No. 4 Chailly, ¾ mi. to the east, 10 b/d with 8% water content.

•

PAKISTAN—The British-controlled Pakistan Petroleum, Ltd., has mapped a record drilling program for 1959, including five or six wildcats.

At least 50,000 ft. of hole will be drilled under its $5.9-million budget for this year. Four wildcats will be drilled in West Pakistan, one in East Pakistan, and a possible sixth at a yet-undetermined location. PPL's natural gas finds in both parts of the country are the only commercial discoveries thus far established.

•

LIBYA—Wintershall AG, German independent, will join in drilling the acreage won by Deutsche Erdoel last year (PW—Nov.28'58,p33). Deutsche Erdoel has already started geological and geophysical work.

•

ITALY—Shell has more than doubled its Italian refining capacity, to 80,000 b/d, through purchase of controlling interest in Condor S.p.A. The company owns a 45,000 b/d refinery near Milan. Another Shell affiliate has a 35,000 b/d plant at La Spezia.

•

MEXICO—The first major foreign credit—$20-million—for equipment purchases in European Common

his world is widening fast

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GULF

Market countries was extended to Petroleos Mexicanos last week by a group of five European banks.

The credit, carrying interest rates varying from 5% to 6%, will be repaid in dollars through a New York bank in seven years. It will be used mostly for petrochemical projects, Pemex says.

The participating banks are: Comptoir National d'Escompte de Paris; Commerce Bank, of Duesseldorf; Bank of Brussels; Creditor Italiano; and Amsterdam Bank.

•

PAKISTAN—Shell is making unusual and successful use of aircraft for marine seismic work in the Bay of Bengal—which is too shallow for large ships, too turbulent for small ones, and subject to sudden heavy gales and strong currents.

The plane is an amphibious Catalina equipped to record rock strata under the sea bed while it taxies over the surface. The specially adapted seismic equipment was developed by Shell in a series of tests in Holland and Pakistan.

•

HOLLAND—Oil output increased 6½% last year to a record 32,400 b/d. The new, western producing area around The Hague and Rotterdam accounted for 40% of the total.

•

HOLLAND—Exploration is being extended offshore into the North Sea by the Jersey Standard-Shell company that accounts for all of Holland's oil production. It is now preparing to start a seismic survey in mid-March off the coast of South Holland province.

•

UNITED KINGDOM—Plans to convert two power stations from coal to oil are being postponed for a year to help reduce huge stocks of unsold coal.

Eleven out of 14 stations originally scheduled for conversion are now wholly or partly oil-burning, and already account for about one-third of Britain's total fuel oil consumption.

•

VENEZUELA—Shell has given up abut one-third of its acreage in eastern Venezuela. The tracts relinquished total some 180,000 acres of development concessions in Anzoategui state, where Shell has no production.

USSR—A new refinery of undisclosed size will be built in Byelorussia, at Polotsk, the Moscow press said last week. Oil is to be supplied through a 1,200-mi. pipeline from Tataria and Bashkiria.

•

EGYPT—Petrofina has made it clear that the new concession deal in which it participates with the Italians and Egyptians is subject to the "standard 50-50 formula" for sharing of profits on 13 new tracts along the Sinai coast.

A formal statement issued by the Belgian firm said the announcement that 75% of the net profits would go to the Egyptian government and 25% to Cie. Orientale des Petroles d'Egypte was "erroneous" (PW—Jan.2'59,p6).

Egyptian entities hold 49% of COPE's capital, Petrofina said. As stockholders, they will receive "half" of the profits after taxes. The other 51% of COPE is held by the Panama-incorporated International Egyptian Oil Co., which is controlled jointly by Petrofina and Italy's state-owned Ente Nazionale Idrocarburi. COPE, Petrofina said, is averaging 37,800 b/d output from its previous Sinai concessions.

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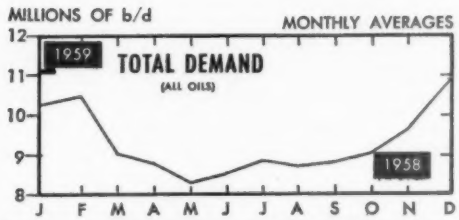
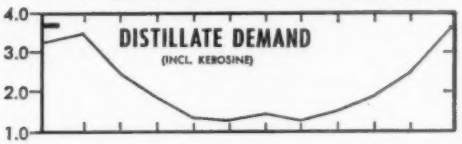
PETROLEUM WEEK'S

Fingertip Figures



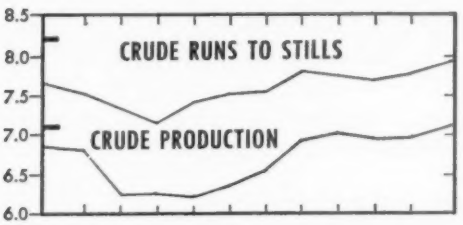
TOTAL DEMAND

Latest 4-week average	10.916
Year ago	10.178



DISTILLATE DEMAND

Latest 4-week average	3.524
Year ago	3.283

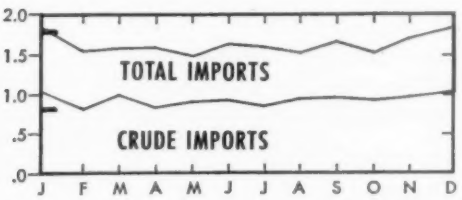


RUNS TO STILLS

Latest week	7.954
Previous week	8.025
Year ago	7.520

CRUDE PRODUCTION

Latest week	7.155
Previous week	7.213
Year ago	6.852

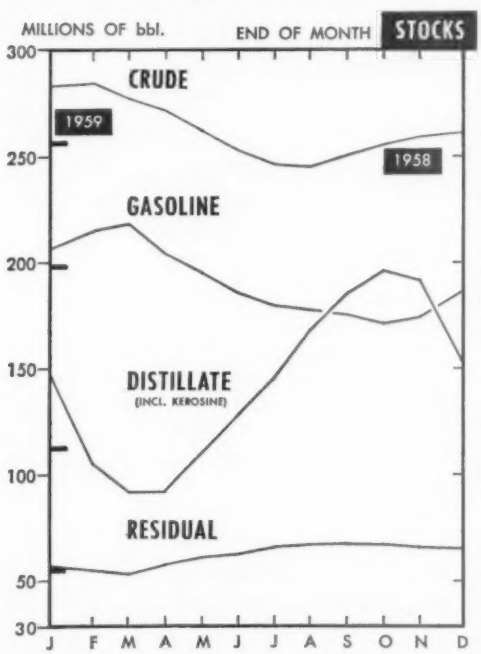


TOTAL IMPORTS

Latest week	1.849
Previous week	1.906
Year ago	1.898

CRUDE IMPORTS

Latest week	.735
Previous week	.862
Year ago	1.217



CRUDE STOCKS

Week-ended 2-7	257.2
Previous week	259.7
Year ago	279.0

GASOLINE

Latest week	200.1
Previous week	198.9
Year ago	210.6

DISTILLATES

Latest week	108.2
Previous week	112.7
Year ago	128.9

RESIDUAL

Latest week	55.6
Previous week	55.8
Year ago	57.1

The upturn in U.S. crude production, which this month will top 7.2-million b/d for the first time in 20 months, won't benefit all producers equally.

The reason is that significant shifts have occurred in the pattern of crude production in the period since June, 1957, when domestic output was last above the 7.2-million b/d level.

The "now and then" comparisons show major losses in some areas and sharp gains in others.

The principal "losers" are Texas producers. Current crude production there is 220,000 b/d under the rate of mid-1957.

With current production of almost 2.9-million b/d, Texas accounts for only 40% of the U.S. total, compared with a little more than 42% in June, 1957.

Elsewhere in the Southwest and Mid-Continent producing areas, Oklahoma's present output is down 17,000 b/d and Kansas's is off 14,000 b/d, compared with June, 1957.

The biggest exception among the established producing states is Louisiana, where current production is approaching 950,000 b/d, up 67,000 b/d over mid-1957.

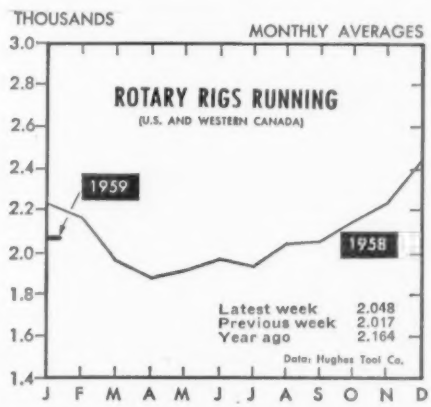
Also, due to the pipeline outlet for its fields in the northwest, New Mexico's current production is up 23,000 b/d.

The biggest "gainers" are Utah producers. Two pipeline outlets from the Four Corners region have helped to boost production 1,000% since mid-1957.

At just over 100,000 b/d, Utah now produces 1.5% of the U.S. total.

Elsewhere in the Rocky Mountain area, Wyoming's output is up 28,000 b/d, but Colorado's is down 24,000 b/d.

California has lost considerable production. Its current output of just under 850,000 b/d is down 80,000 from mid-1957.



The Market Trend

A Little of the Bloom has Disappeared

The markets turned quiet last week. If two cargoes were sold spot during the period, it was a lot. This is in sharp contrast to the heavy buying of early February (PW—Feb.6'59,p54).

The tip-off to the slow-down came when spot tanker rates started to slide. Chartering in January was especially active. However, there were plenty of vessels—and there still are—to meet demands. Thus, the slightest easing in call for tonnage sent clean Gulf-New York rates off from about USMC+7½% to USMC—5%.

And oil buyers were looking disinterested for a change. One big buyer pulled out of the New York harbor market. Others quit scouting the West Coast for possible No. 2 bargains to bring East. One said he plans to do no spot buying from here on out unless he absolutely has to.

As the buyers backed away, some of the shy sellers came forward. Three or four cargoes of No. 2 fuel suddenly materialized—for East Coast delivery. The cargoes were asked at "premiums," but, still, they were there if anybody wanted them. Down at the Gulf, some distillate was quoted on a tie-in basis with gasoline.

Some of the bullish talk in the marketplace came in for second-guessing, too. Crude prices were easing in many areas. The Gulf Coast gasoline market may not be quite as strong as some of the independent refiners had hoped. In the Mid-Continent, most refiners swore they wouldn't let go of regular-grade for less than 11.625¢—but talk of 0.125¢ discounts persisted.

Admittedly, the winter was good for sales—but there is still a surplus of refining capacity, ships, and foreign crudes. Surplus producing capacity means that all but severe supply dislocations can be taken in stride. Last week, the word was getting around the cargo market that the "winter is over."

A New York independent sums it up with: "If you want my advice, this might be a good time to empty a few tanks." Barring interruptions in supply, the marketer with empty tanks is the best buyer.

Brazil and Venezuela:

Petrobras, the Brazilian oil agency, is trying to work out a deal with one of the "new" producers in Venezuela. The trick of it, from Petrobras' standpoint, is to sell off some of its waxy indigenous Bahia crude while buying Venezuelan oils.

Petrobras is trying to work out a "three-for-one" deal—three barrels of Venezuelan oil coming in and one barrel of Bahia going out.

Russian "C" Fuel:

Rumors keep boiling about where the Russian bunker "C" fuel will wind up when it hits the East Coast (PW—Jan.30'59,p46). Baltimore and New York are talked of as possible ports of entry. Two steel mills and a reseller also are mentioned.

Sumatran Crude:

Toa Nenryo Kogyo, the second largest refiner in Japan, is thinking of trying a cargo of Dirik crude oil from Sumatra. The company is negotiating now with Standard-Vacuum on price and quantity. The oil is waxy, and may pose some refining difficulties.

The Market Place

AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All prices as of February 16

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U. S. Gulf Coast, cargoes
- Gasoline, 98 oct prem.....11.75-12.75
- Gasoline, 92 oct reg.....10.5-11.5
- Kerosine.....10.375
- Heating oil, No. 2.....9.875
- Gas oil, 48-52 d.i.....10.125
- Fuel oil, bunker "C".....$2.00-2.10

Caribbean, cargoes
- Avgas, Grade 100/130.....16
- Gasoline, 93 oct research prem.....10.75
- Gasoline, 87 oct research reg.....9.875
- Gasoline, 79 oct research.....9.125
- Gasoline, 70-72 oct motor method.....9
- Kerosine.....10.625
- Heating oil, No. 2.....9.875
- Gas oil, 48-52, d.i.....10.125
- Fuel oil, bunker "C".....$2.00

New York Harbor, barges
- Kerosine.....11.5
- Heating oil, No. 2.....11
- Fuel oil, No. 6.....$2.37-2.45

Okla-Group 3, northern shpt., bulk
- Gasoline, 89 oct reg.....11.5-12.375
- Kerosine.....11-11.25
- Heating oil, No. 2.....10
- Fuel oil, No. 6.....$1.90-2.10

Chicago, bulk
- Gasoline, 91 oct reg.....11.5
- Heating oil, No. 2.....10.5-11.85
- Fuel oil, No. 6 high sulfur.....7.65-7.75

Los Angeles, rack
- Gasoline, 88 oct reg.....12.5-12.6
- Diesel fuel, PS 200.....10-11.25
- Light fuel, PS 300.....$2.80
- Heavy fuel, PS 400.....$2.15-2.35

Natural Gasoline, Grade 26-70
- FOB Group 3.....4.5
- FOB Breckenridge, Tex.....4

LP-Gas
- Propane, Oklahoma (Group 3).....5.5

Pennsylvania Lubes
- Bright stock, 25 p.t.....22
- 200 vis. neutral, 25 p.t.....21

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent 95 v.i.....23-24
- Neutral, solvent, 200-210 vis.....19.5-20.5

Gulf Coast Lubes
- Bright stock, solvent, 95 v.i.....24
- Neutral, solvent, 200 vis.....20.5

Eastern Hemisphere

Singapore (Pulau Bukom), cargoes
- Avgas, grade 100/130.....17.25
- Gasoline, 79 oct research.....10
- Kerosine.....10.75
- Gas oil, 48 d.i. minimum.....10.5

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- **Mid-Continent, 36.0-36.9.....$2.77-3.00↓**
- North Dakota, 36.0-36.9.....2.62-2.87
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9.....3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9....2.92-3.22
  - **West Texas, sweet, 36.0-36.9.....3.00↓**
  - **West Texas, N. M., inter., 36.0-36.9.....2.93↓**
  - **West Texas, N. M., sour, 32.0-32.9.....2.71↓**
  - East Texas, flat.....3.25
  - Mirando, 28.0-28.9.....3.31
- Illinois Basin, flat.....3.00
- Pennsylvania Grade, Bradford dist., flat.....4.05
- California, Signal Hill, 21.0-21.9.....2.50†
- North Louisiana-Arkansas, 36.0-36.9.....2.77-3.02
- Wyoming, sweet, 36.0-36.9.....2.90-3.00
- Wyoming, sour, 32.0-32.9.....2.71

Canada (flat prices, at the well)
- Acheson-Stony Plain (Alta.).....$2.61
- Leduc-Woodbend (Alta.).....2.67
- Redwater (Alta.).....2.56
- **Daly (Man.).....2.38↓**
- Smiley (Sask.).....2.33

Venezuela (Cargoes, FOB lifting port designated)
- **Cumarebo, 48-0-48.9, Tucupido.....$3.51↓**
- San Joaquin, 41.0-41.9, Puerto la Cruz.....3.25
- **Oficina, 35.0-35.9, Puerto la Cruz.....2.88↓-3.05**
- **Tia Juana, Medium, 26.0-26.9, Amuay.....2.40↓**
- Bachaquero, flat, Las Piedras.....1.78-1.93
- Tarra, 38.0-38.9, San Lorenzo.....2.93
- Lagunillas Heavy, flat, Cardon.....2.10

†*Differential per deg. of grav. varies.*

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura.....$2.08
- Safaniya, 27.0-27.9, Ras Tanura.....1.65
- **Iran, 34.0-34.9, Bandar Mashur.....1.86↓-2.04**
- **Iran, 34.0-34.9, Abadan.....1.81↓-1.99**
- **Iraq, 35.0-35.9, Fao.....1.80↓-1.98**
- **Kuwait, 31.0-31.9, Mina-al-Ahmadi....1.67↓-1.85**
- **Qatar, 41.0-41.9, Umm Said.....2.05↓-2.23**
- Neutral Zone, Burgham, 23.5-24.4, Mina Saud...1.61
- N. Zone, Eocene-Ratawi, 20.5-21.4, Mina Saud...1.43

Middle East, Eastern Mediterranean
- Arabian, 36.0-36.9, Sidon.....$2.49
- **Iraqi, 36.0-36.9, Tripoli, Banias.....2.31↓-2.49**

Far East, Cargoes, FOB Lutong, Sarawak
- Seria Light, 37-38.....$2.75

KEY TANKER RATES

(Last paid, per long ton, single voyage)

U.S. Gulf-New York, clean.....(USMC +12½%) $3.21
U.S. Gulf-New York, dirty..(USMC +20%) $3.42↑
NWI-USNH, dirty.....(USMC) —57½%) $1.15
NWI-UK/Cont., dirty.....(Scale —42½%) 18/8*
Per. Gulf-UK/Cont., dirty.....(Scale —52½%) 29/4*
Persian Gulf-USNH, dirty.....(USMC) —70%) $3.81

**Sterling.*

Mobil, Hilton Sign Credit-Card Deal

Socony Mobil Oil Co. completed an agreement last week with the Hilton Hotel chain to recognize Hilton's million-odd outstanding credit cards at its 32,000 Mobil service stations. The Mobil dealers thus become the largest single group of retailers of any description to be affiliated with any all-purpose credit card. The arrangement with Hilton increases by 50% the number of credit accounts that will now be recognized by the Mobil dealers.

The new contract, which will become effective in April, 1959, covers dealers in 43 states.

It includes areas where Mobil products are marketed by Socony Mobil affiliates, General Petroleum Corp. and Magnolia Petroleum Co. Socony's foreign subsidiaries are not included in the arrangement.

Socony took the initiative in approaching Hilton last fall. The oil company had been interested in completing an agreement with an outside credit agency for some time. Before it came to terms with Hilton, Socony had opened negotiations with several credit card firms.

One of the advantages Socony finds in the Hilton set-up is the complete compatibility of the "Carte Blanche"—Hilton's credit card—with the existing Socony credit card system. The Hilton cards fit the automatic imprinters—the Scandex—which Mobil dealers use for Mobil credit cards.

The new expansion of credit, therefore, requires no revision of present Socony accounting facilities.

The new arrangement with Hilton does not involve the payment of any discount or membership fees by the oil company dealers. Mobil is bearing these costs. Exact terms have not been disclosed.

The cost of affiliation with an all-purpose credit card has been an important factor to suppliers and dealers alike in considering such tie-ins. With very slim margins, the prospect of a 6% or 7% charge has not been attractive.

It is significant that Mobil itself will bear the costs in this new contract with Hilton, rather than passing them on to dealers.

Mobil dealers will not have to wait for reimbursement for their sales to Hilton credit-card holders. Mobil will credit dealers for such sales in the same way that it handles sales on regular Mobil cards.

CONRAD HILTON (right) inspects the Mobil credit card imprinter in which the Hilton "Carte Blanche" all-purpose credit cards will be used from coast to coast beginning in April.

Mobil in turn will be reimbursed daily by Hilton for "Carte Blanche" sales. This places the financial burden of carrying the credit squarely on Hilton.

Earlier negotiations between oil companies and credit agencies had suggested that the service station dealer might have to wait up to five months to be paid (PW—Dec.12'58, p54).

Hilton's "Carte Blanche" was launched last November by Hilton Credit Corp., an affiliate of Hilton Hotels Corp. In addition to the 32,000 Mobil stations, the million "Carte Blanche" holders can charge purchases at 5,000 Hilton associates, including Hilton Hotels throughout the world.

In its contract with Socony Mobil, Hilton is permitted to negotiate with other oil companies. If Hilton is successful in lining up other service stations, its credit card holders will not be limited to Socony in their credit purchases of gasoline and other station products.

This loss of brand loyalty among credit-card holders was once considered a factor in preventing oil companies from actively considering the all-purpose credit card field. But now that nearly 70% of credit-card customers carry more than one oil card, many suppliers feel that brand loyalty has become a less important factor.

Mobil is also free to accept other all-purpose credit cards if it desires.

The industry is still waiting for Diners' Club to announce an agreement with one of four major oil companies. Arthur Bloomingdale, president of the credit-card agency, said early in January that he expected to conclude an agreement soon.

Shell Goes to School on Prices

Shell Oil Co. has developed a full-scale program designed to instruct its personnel on petroleum prices. Recognizing the need for better understanding on this controversial subject, Shell is sending a troop of demonstrators into all its departments to explain the factors that determine prices.

Shell knows its employes are often called upon to discuss prices—before civic groups, or even by the government. Without the proper background information these employes are apt to present misleading or even inaccurate views.

This problem becomes increasingly important today, with the prospect of increased gasoline taxes and the drastic fluctuations in prices brought on by price wars.

A study by Claude Robinson for API, Shell notes, reveals that consumers are not wholly aware of the fact that gasoline prices have risen less than consumer prices in general. Many of the consumers surveyed by Robinson have the erroneous belief that only one consumer item has risen more than gasoline—haircuts.

It is significant that Shell has superseded the usual media of internal communications (house organs and company notices), and has decided to go directly to its employes with live presentations.

This is believed to be the first time that an oil company has considered a subject to be important enough to warrant direct communication through its entire organization.

"We've found that nothing can take the place of a presentation," says

AVONCRAFT porcelain enamel stations

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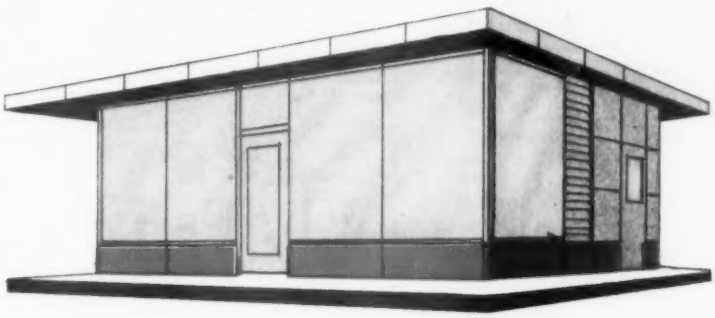

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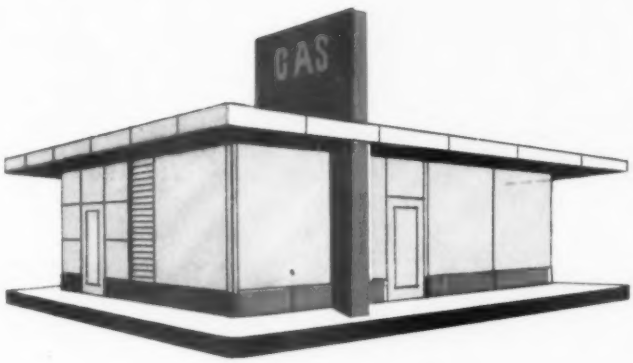

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J. G. (Doc) Jordan, marketing vice-president.

The presentations, initiated last month after several weeks of intensive preparation, emphasize the importance of competition in keeping gasoline prices at a minimum.

Each link in the pricing mechanism is analyzed, with the stress given to the beneficial factors of supply and demand, and individual decision, as the main deterents to gasoline price increases.

"Competition not only protects the consumer," Shell says, "it assures him of a dependable supply. Competition also serves to provide a strong incentive for each businessman to improve product quality and distribution efficiency."

One of the most fruitful results of competition, the Shell presentation points out, has been the improvement in the quality of gasoline: "The regular gasoline of today is as good as the premium gasoline of ten years ago." But the public tends to overlook these improvements when it sees the price of gasoline rise.

In explaining the mechanism of competition, Shell reminds its employes that, although competition is fundamental in benefiting the consumer, it also causes harmful price wars. And it is these price wars which generate a great deal of the public misunderstanding about gasoline pricing.

Jordan points out that in areas where price wars have been protracted, consumers become so accustomed to low prices that they resent later "increases" back to normal levels. Consequently, it is very difficult to readjust the pricing structure after a price war without incurring public ill-will.

Jordan points to the New England area as one in which this problem has become intensified by the tendency of dealers to express their own grievances through poor service—"or no service at all."

It is Shell's intention to clarify such situations as these in the eyes of its own employes in order that they may be better able to explain to consumers the underlying competitive factors that are responsible for these disturbances.

PRICE ON PRICE: Charles F. Price of Shell's head-office public relations tells employes the "why" of prices.

Shell's presentations on prices are only the beginnings of a broader plan to explain other issues to company employes. In the preparation stage now is a presentation to be given to employes on the importance of percentage depletion. Kenneth Beaton, assistant manager of public relations, is preparing the presentation; he plans to give the talks some time later this spring.

What's New / IN MARKETING

The gasoline price war in the Denver area has resulted in a federal grand jury investigation of pricing practices of 25 oil companies there.

The war has kept Denver prices about 6¢ below "normal" since last October. This will be the first time that the Justice Dept. has launched a study of the pricing phase of oil operations in the Denver area.

•

The price war that started last week in Kansas City is spreading to outlying areas.

Retail prices are 5¢ below "normal," with major-brand stations selling regular for 14.9¢ gal. (ex 8¢ tax), and private-brands stations at 12.9¢.

•

The Wyoming legislature has passed, and sent to Gov. Joseph J. Hickey, a bill to outlaw trading stamps. The bill would, however, permit merchants to issue coupons redeemable for merchandise in their own stores (PW—Feb.6'59,p57).

The governor hasn't indicated whether he'll sign or veto the measure. Attorneys for trading stamp companies say, however, that if the bill gets the governor's approval and becomes law, they'll seek immediately to test its constitutionality.

A suit questioning the constitutionality of Worland's (Wyo.) city ordinance banning trading stamps was filed last week in Washakie County district court.

•

Improved oil burner sales will reflect the rise in 1959 construction activity, says J. Verne Resek, president of the Oil Heat Institute. According to his predictions, residential construction will rise 1% and nonresidential construction 5%.

A bill has been introduced in the Texas legislature that would bring stiff penalties for those using expired or revoked oil-company credit cards.

First offenders could be fined up to $200, and second offenders would be subject to a two-year jail term and a fine up to $1,000.

•

The U.S. has had 10.2% more degree days in the current heating season than in the corresponding 1957-1958 period, and 4.6% more than normal, according to weather bureau reports from key points across the nation.

All regions except the West Coast have had more degree days than last season, and more than normal. The present U.S. average is 3,232 degree days, compared to 2,034 last year and a normal of 3,091.

Coldest weather has been experienced in the Great Lakes region, where average degree days were 6.4% more than normal.

•

Engineering

A high-voltage transistorized ignition system has been developed by Electric Auto-Lite Co.

The new system offers dependable starting, reliable performance, minimum repair, and peak efficiency at all speeds, the company says. It is expected to have "immediate application on industrial engines, marine engines, military vehicles, commercial fleets, farm equipment, and wherever system longevity and superior performance is demanded."

The transistorized ignition will be priced in the range of power steering, and will be available as optional equipment on some 1961 auto models, Auto-Lite says.

Now from Du Pont Research comes a new kind of paint that definitely *retards the spread of flame.*

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DEPT/Personals

EDWARD F. MORRILL has been elected vice-president of Standard Oil Co. (Ohio), Cleveland. Morrill is also president of its subsidiary, Sohio Chemical Co. He was president of Mid-Valley Pipeline Co., another Sohio affiliate, from 1950 to 1954, when he assumed responsibility for construction of Sohio's petrochemical manufacturing plant at Lima, Ohio.

W. P. Gee

E. F. Morrill

WILLIAM P. GEE is The Texas Co.'s new vice-president for foreign petrochemicals, with offices in New York. Gee has been president of Texas-U. S. Chemical Co. since it was formed by Texaco and United States Rubber Co., in 1954. Before that, he was assistant to Texaco's president. **Arthur K. O'Keefe**, formerly with U. S. Rubber's chemical division, succeeds Gee as president of Texas-U. S. Chemical.

NORMAN R. HOSTLER has been appointed industrial and marine sales supervisor for Tidewater Oil Co.'s eastern division, with offices in New York. He was most recently industrial sales supervisor for Tidewater's Middle Atlantic district.

J. T. MORROW is in charge of Enjay Co.'s new sales office in Toronto. Morrow formerly handled additive sales in New York for Enjay, petrochemical marketing affiliate of Standard Oil Co. (N.J.). The new Toronto office will function as a part of the export division.

RALPH M. KNIGHT is the new manager of polyolefin planning and applications for U.S. Industrial Chemicals Co., a division of National Distillers & Chemicals Corp. He will be responsible for planning and coordination of USI's polymer development program, and will be located at laboratories at Tuscola, Ill. Since joining National Distillers in 1953, Knight has served as polyethylene manager, polyethylene production manager, and assistant to the vice-president of production.

THOMAS S. HORROCKS has been elected a director of Sun Oil Co., Philadelphia. Horrocks has been Sun's general sales manager since 1957, and will continue in that position. He joined Sun in 1934 as a salesman. He became sales manager in Harrisburg in 1939 and after that, became district manager at Marcus Hook, Pa., and River Rouge, Detroit, and assistant regional manager at New York. Horrocks returned to Philadelphia as assistant general sales manager in 1955.

T. S. Horrocks

J. B. Maebius

JED B. MAEBIUS has been promoted to central division exploration manager of Tidewater Oil Co., with offices in Tulsa. He joined Tidewater in 1957 as senior geologist in the home office in California. Before that, he held various posts with Gulf Oil Corp., including those of chief geologist and assistant exploration manager in Gulf's Tulsa division.

H. D. BECWAR has been promoted to assistant manager of the Denver division of The Texas Co.'s domestic producing department. He was formerly division geologist in Houston.

HARRY S. LAIN has joined Cosden Petroleum Corp. as chief geologist, coordinating the geological and geophysical departments at the company's main office in Big Spring, Tex. Lain was formerly associated with Phillips Petroleum Co., in Midland. Later he was with Seaboard Oil Co. as district geologist in Amarillo and Midland, and in a division staff post in Dallas. Following the merger of Texaco and Seaboard, he was New Mexico district geologist of The Texas Co. He was most recently located at Texaco's Midland office.

D. K. DRESSBACK is the new treasurer of Tekoil Corp., with offices in Oklahoma City. He was formerly Tekoil's comptroller.

LEONARD L. HUXTABLE is the new manager of the sales department's western region for Ethyl Corp., with offices in Los Angeles. Huxtable was formerly assistant manager of the southern region, with offices in Tulsa. **J. O. Balzer**, formerly district manager of the Houston office, succeeds Huxtable in Tulsa. **J. E. Hendrick** succeeds Balzer in Houston.

O. A. Seager

D. M. Brown

O. A. SEAGER returns to his former position as manager of oil operations in Dhahran, Saudi Arabia, and **DONALD M. BROWN** to his former position as manager of the exploration and producing department in New York, for Arabian American Oil Co. Seager has been manager of the exploration and producing department in New York for the past two years, and Brown has been manager of oil operations in Dhahran.

ROBERT W. WOOLLEN has been promoted to assistant treasurer and manager of the accounting department of Petroleum Chemicals, Inc., New Orleans. In his new capacity, Woollen will undertake responsibilities previously assigned to the late

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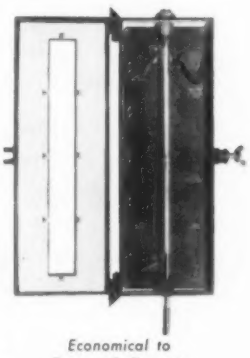

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BANK

A. L. Green, Jr., who was comptroller. Woollen joined PCI in 1957 as budget officer, and later that year was made assistant treasurer. Prior to joining PCI, he was affiliated with W. R. Grace & Co., serving as export sales manager in the New Orleans office, and as assistant to the treasurer in the New York office.

JACK W. STACKPOLE has been appointed to the newly created position of special representative to coordinate foreign and domestic crude oil sales of Lion Oil Division of Monsanto Chemical Co., with offices in the production and exploration department's offices in Houston. Stackpole was formerly district landman in the division's Corpus Christi office.

S. FRED BIRD is the new chief petroleum engineer for Mobil Oil of Canada, Ltd., with headquarters in Calgary. Bird joined Mobil of Canada in 1954 as a senior petroleum engineer, and later became assistant petroleum engineer.

S. F. Bird

W. J. Magers

W. J. MAGERS has been appointed general superintendent of SunOlin Chemical Co.'s proposed urea plant, scheduled for completion in Philadelphia in late 1959. Magers was most recently operating assistant of Sun Oil Co.'s Marcus Hook (Pa.) refinery. SunOlin is jointly owned by Sun and Olin Mathieson Chemical Corp.

DeWITT A. FORWARD, vice-chairman and a director of The First National City Bank of New York, was elected a director of Phillips Petroleum Co., on Feb. 9. Forward has general supervision of First National City's domestic and overseas loan portfolios, and serves as chairman of the money committee.

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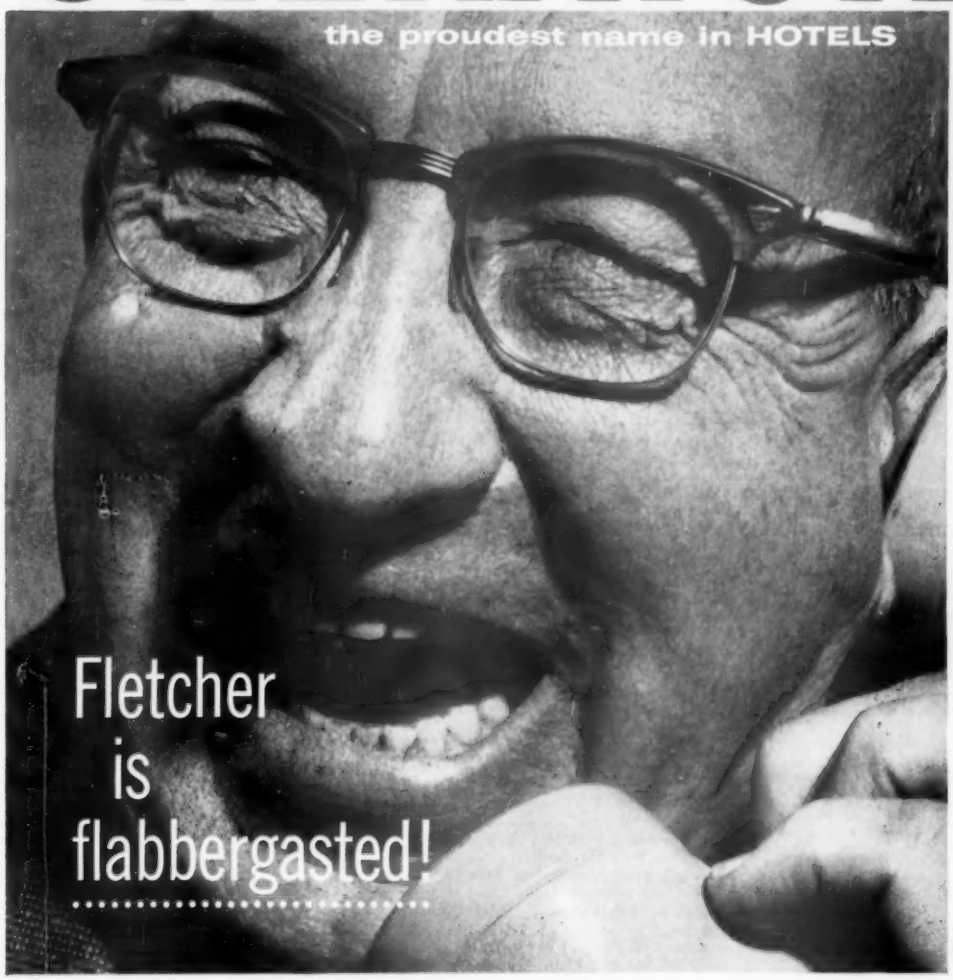

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LOUISVILLE
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DEPT/Service & Equipment Companies

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O. W. Van Dyke

F. A. Enz

F. H. Loe

I. W. HOSKINS has been appointed to the newly created position of senior vice-president of marketing, and **ORIEN W. VAN DYKE** senior vice-president of production and technical matters, for Magnet Cove Barium Corp., Houston, one of the Dresser Industries. At the same time, **FLOYD A. ENZ** was named senior vice-president of finance, and **FRANK H. LOE** to the newly created position of vice-president and sales coordinator. **John E. Lyons,** formerly assistant sales manager of the drilling mud department, has been promoted to sales manager of that department, succeeding Loe. Hoskins was formerly president and general manager of Mud Supply Co., Louisiana distributor of Magcobar products. Van Dyke was formerly vice-president and technical director, and Enz was vice-president of finance and secretary-treasurer.

PAUL L. PATTERSON is special representative in the Houston area for Frank Wheatley Supply Co. He has been with the industrial division of Goodyear Tire & Rubber Co. for the past eight years, at Lubbock and Odessa, Tex., and Tulsa.

ARTHUR R. RATTEW has joined the staff of the airborne geophysical division of Canadian Aero Service, Ltd., Ottawa. He was formerly associated with Newmont Mining Corp., as a geophysicist.

E. L. CROWE has been appointed controller of Flour Products Co., with headquarters in Whittier, Calif. He was most recently auditor for Fluor Corp., Ltd., Los Angeles, and before that was administrative manager on the Dhahran (Saudi Arabia) air base, which Fluor built for the Air Force.

E. L. Crowe

L. S. Galstaun

DR. LIONEL S. GALSTAUN has joined Bechtel Corp. as a senior staff member of the refinery and chemical division, at San Francisco. Galstaun was formerly supervisor of research for Tidewater Oil Co.

W. R. WOOD, president of the Girdler Construction Division of Chemetron Corp., Louisville, Ky., is the

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new president of the National Constructors Assn., and **Donald W. Darnell,** chairman of Fluor Corp., Ltd., Los Angeles, is vice-president. New members of the organization's executive committee are: **R. L. Cashen,** vice-president of H. K. Ferguson Co., Cleveland; **W. Earl Dunn,** vice-president of Blaw-Knox Co., Pittsburgh; **J. W. Smith,** assistant vice-president of M. W. Kellogg Co., New York; and Darnell.

ROBERT R. REED has been named regional sales manager of the Gulf area for Lone Star Steel Co., Dallas. Reed joined Lone Star in 1954.

HENRY B. WOODS, rock bit scientist, is the new director of research of Hughes Tool Co., Houston. He has been acting director of research since the retirement of **Floyd L. Scott** last August, and has been associated with Hughes' research and engineering departments for the past 34 years. Woods holds 15 patents dealing with the development of tool joints and rock bits, including one issued in connection with the development of the Hughes "chert" bit. This is a three cone bit that does not have conventional teeth; instead, it has sintered tungsten carbide inserts pressed into the cone shell. Woods is also author or co-author of about 20 technical papers, four of which deal with the solution of the crooked hole problem.

H. B. Woods

F. Anderson

FRANCIS ANDERSON has been named manager of Halliburton Oil Well Cementing Co.'s chemical research and development laboratories at Duncan, Okla. He succeeds **Hayden Roberts,** who has retired. Anderson was formerly assistant manger of the chemical research and development lab.

WILLIS P. BAKER has been appointed sales manager of the Northeast division for Schlumberger Well Surveying Corp., with offices at Evansville, Ind. Baker, with Schlumberger since 1947, was most recently district manager in the Illinois Basin.

MURRELL D. LONG has been appointed production superintendent of Girdler Catalysts, a unit of Chemetron Corp.'s chemical products division, in Louisville, Ky. Long was with Girdler Catalysts from 1952 to 1957. He was a field engineer with Wheelabrator Corp., Chattanooga, Tenn., before rejoining Girdler.

A. M. SUITOR is the new store manager for Jones & Laughlin Supply Division at Drayton Valley, Alberta. Suitor joined Jones & Laughlin at Drayton Valley in 1954, as storeman.

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Memo to Senator Douglas:

Depletion Is Not a Tax 'Loophole'

DATA ON OIL AND GAS OPERATIONS developed by a government agency prove that your charge of a tax "loophole" in percentage depletion is erroneous.

The information was compiled by C. C. Anderson, chief petroleum engineer of the Bureau of Mines, and published recently by the Independent Petroleum Assn. of America. It shows rather conclusively that if any change is to be made in depletion permitted for income tax purposes, the percentage should be increased.

Your statement last week was that, as the Illinois Democratic chairman of the Joint Congressional Economic Committee, you hope to cut the percentage allowed to oil and gas producers from the present 27.5% to 15%. A study of the actual income and outgo of oil and gas producers should be made before damage is done to the many competitive entities that comprise this vital energy-producing industry.

The "balance sheet" of oil and gas producers for recent years is not a favorable one. The data compiled by Anderson for the years 1951, 1953, and 1955 show how the net value of oil and gas produced compares with the costs of finding, developing, and producing it, as follows:

	1951	*1953*	*1955*
	(Billions of Dollars)		
Net value of production	$5.3	$6.1	$6.7
Exploration costs	1.6	2.0	2.3
Development costs	1.9	2.3	2.9
Operating costs	1.6	1.8	2.0
Total costs	5.2	6.1	7.1
Net Annual Balance	+0.1	0.0	—0.4

Finding and developing costs in 1955 of $5.1-billion are the equivalent of $2.40 a bbl. on the net production for that year. The average wellhead price of oil in 1955 was $2.77 a bbl.

THE DEPLETION PERCENTAGE ALLOWED oil producers is limited to 50% of net income, so the over-all effective rate is no more than 23%, rather than the 27.5% permitted.

But even if producers received the theoretical maximum, the $2.40 a bbl. they spent in 1955 on finding and developing new reserves (excluding lifting costs) was more than three times the depletion permitted.

That means that for every dollar from percentage depletion plowed back into the search for new oil reserves, producers put up two dollars from other sources.

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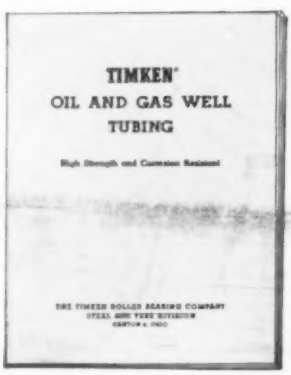

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